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B.C.Hydro

LOW — PROBABLE — HIGH

PROJECTIONS OF GROSS LOAD REQUIREMENTS

ALL SERVICES
1982/83:2002/03

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LOAD FORECAST DEPARTMENT
CORPORATE

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TABLE OF CONTENTS

Page

TABLE OF CONTENTS 1
LIST OF TABLES 2
SUMMARY - ELECTRIC SERVICE 8
- GAS SERVICE 23
INTRODUCTION 30
PART ONE ECONOMICS AND DEMOGRAPHICS 35
PART TWO ENERGY PRICES 48
PART THREE ELECTRIC-PROBABLE RESIDENTIAL SALES 59
PART FOUR ELECTRIC-PROBABLE GENERAL SALES 71
PART FIVE ELECTRIC-PROBABLE BULK SALES 82
PART SIX ELECTRIC-PROBABLE TOTAL SALES 109
PART SEVEN ELECTRIC-PROBABLE ENERGY REQUIREMENTS FOR SYSTEM PLANNING 116
PART EIGHT ELECTRIC ENERGY REQUIREMENTS - LOW AND HIGH PROJECTIONS 127
PART NINE GAS PROJECTIONS 134
PART TEN RAILWAY OPERATIONS 177

APPENDIX A ECONOMIC AND DEMOGRAPHIC DATA 180
APPENDIX B ENERGY PRICE DATA 189
APPENDIX C LOAD GROWTH, ENERGY PRICES AND INCOME 205
APPENDIX D ELECTRIC-RESIDENTIAL DATA 226
APPENDIX E ELECTRIC-GENERAL DATA 233
APPENDIX F ELECTRIC-BULK DATA 249
APPENDIX G ELECTRIC-DIVISIONAL SUMMARIES 259
APPENDIX H ELECTRIC REQUIREMENTS FOR PLANNING 271
APPENDIX I ASSUMPTIONS TO NATURAL GAS SALES PROJECTIONS - LOW, PROBABLE AND HIGH 279

LIST OF TABLES

		Page
Table E1	Projections of Electric Gross Energy Requirements - Total B. C. Hydro	13
Table E2	Historic and Probable Projections of Electric Power Requirements by Sales Categories	15
Table E3	B. C. Demographic and Economic Forecasts	17
Table E4	B. C. Energy Prices	18
Table E5	Residential Electric Sales Projections	19
Table E6	General Electric Sales Projections	20
Table E7	Bulk Electric Sales Projections	21
Table E8	Projections of Electric Gross Load Requirements Integrated System	22
Table G1	Projections of Natural Gas and LP Gas Sales Lower Mainland - Vancouver Island	26
Table G2	History and Probable Projections of Natural Gas Sales	28
Table G3	Projections of Compressed Natural Gas - Lower Mainland	29
Table 1-1	Key Economic Indicators	38
Table 1-2	Summary Key B. C. Economic Indicators	40
Table 1-3	Share and Growth of B. C. GDP by Sector - Central Solution	41
Table 1-4	B. C. Population and Household Forecast	43
Table 2-1	Historic and Forecast Electricity Prices	52
Table 2-2	Historic and Forecast Crude Oil and Natural Gas Prices	56
Table 3-1	Relative Energy Costs for Residential Space Heating	63
Table 3-2	Residential Electric Load Profile	65
Table 3-3	Residential Electric Appliance Forecast	66
Table 3-4	Residential Electric Sales Projections	69
Table 3-5	Residential Accounts Detail - Historic and Probable Projections - Total All Divisions	70
Table 4-1	Disaggregation of General Sales	73
Table 4-2	General Industrial Electric Energy Requirements	75
Table 4-3	General Commercial Energy Forecast Summary	80
Table 4-4	Summary of General Electric Energy Requirements	81
Table 5-1	Bulk Electric Energy Requirements for Pulp and Paper and Wood Manufacturing	88
Table 5-2	Bulk Electric Energy Requirements for Chemicals for Pulp and Paper	89
Table 5-3	Bulk Electric Energy Requirements for Metals Mining and Smelting	94
Table 5-4	World Coal Imports	96
Table 5-5	Hypothetical Trading Preferences for Sources of Coal Supply - Year 2000	97
Table 5-6	B. C. Coal Production Projections	101
Table 5-7	Bulk Electric Energy Requirements for Coal Mining	102
Table 5-8	Bulk Electric Energy Rquirements for Petrochemicals and LNG	105
Table 5-9	Bulk Electric Energy Requirements for Other Bulk Loads	107
Table 5-10	Composition of Bulk (1800 Series) Sales Probable Projections - Total All Divisions	108
Table 6-1	Estimated Annual Electric Load Requirements for WKP&L	112
Table 6-2	Probable Projection of Electric Power Sales	114

Page

Table 6-3 Historic and Probable Projections of Electric Energy Sales and Average Customers - Total All Divisions 115
Table 7-1 Historic and Probable Projections of Electric Power Requirements by Sales Categories 122
Table 7-2 Probable Projections of Gross Electric Power Requirements Fiscal Years - April to March - 1982/83 - 1987/88 123
Table 7-3 Projections of Electric Gross Load Requirements - Integrated System 125
Table 7-4 Comparison of Actual Energy Requirements with Probable Forecast of Total Gross Requirements 126
Table 8-1 B. C. Pessimistic Macro Forecasts 130
Table 8-2 B. C. Optimistic Macro Forecasts 131
Table 8-3 Historic and Low Projections of Electric Power Requirements by Sales Categories 132
Table 8-4 Historic and High Projections of Electric Power Requirements by Sales Categories 133
Table 9-1 Natural Gas Probable Projections - Lower Mainland 139
Table 9-2 Natural Gas Probable Projections - Metropolitan 143
Table 9-3 Natural Gas Probable Projections - Fraser Valley 147
Table 9-4 Natural Gas High Projections - Lower Mainland 151
Table 9-5 Natural Gas High Projections - Metropolitan 155
Table 9-6 Natural Gas High Projections - Fraser Valley 159
Table 9-7 Natural Gas Low Projections - Lower Mainland 163
Table 9-8 Natural Gas Low Projections - Metropolitan 167
Table 9-9 Natural Gas Low Projections - Fraser Valley 171
Table 9-10 Comparison of Actual Gas Sales with Probable Projections - Lower Mainland 175
Table 9-11 Projection of Probable LP Gas Sales - Vancouver Island 176
Table AA-1 B. C. Fertility Rates 182
Table AA-2 B. C. Mortality Rates 183
Table AA-3 B. C. Net In-migration 184
Table AA-4 B. C. Headship Rates 185
Table AA-5 B. C. Distribution of Housing Type by Age Group 186
Table AA-6 B. C. Distribution of Occupied Household by Type of Dwelling 188
Table AA-7 B. C. Distribution of Incremental Occupied Households by Type of Dwelling 188
Table AB-1 Comparison of Financial Parameters 192
Table AB-2 Generation Expansion Plan - 20 Years 193
Table AB-3 Unit Revenue Requirements 193
Table AB-4 Canadian Crude Oil and Natural Gas Prices 196
Table AB-5 B. C. Crude Oil and Product Prices 200
Table AB-6 B. C. Natural Gas Prices 203
Table AC-1 Effect of Price on Residential Electric Use 212
Table AC-2 Estimated Effects Constant Real Electricity Prices on Residential Requirements in 1992/93 and 2002/03 216
Table AC-3 Bulk and Industrial Self-Generation 219
Table AC-4 Comparison of B. C. Hydro's and DataMetrics' Forecasts of Electric Requirements 223
Table AC-5 Comparison of B. C. Hydro, DataMetrics and Nera Estimates of Price Elasticity of Electricity Demand 225

		Page
Table AD-1	Residential Accounts Detail - Historic and Probable Projections - Lower Mainland Division	228
Table AD-2	Residential Accounts Detail - Historic and Probable Projections - Central Interior Division	229
Table AD-3	Residential Accounts Detail - Historic and Probable Projections - North Coast Division	230
Table AD-4	Residential Accounts Detail - Historic and Probable Projections - South Interior Division	231
Table AD-5	Residential Accounts Detail - Historic and Probable Projections - Vancouver Island Division	232
Table AE-1	Forecast of Ratios of Unit Electricity Use for New Commercial Floor Space to Existing Floor Space and GDP	237
Table AE-2	Formula for Calculation of Electric Energy Requirements in Certain Commerical Floor Space	238
Table AE-3	Electric Energy Requirements for Public Elementary and Secondary Educational Facilities	241
Table AE-4	Electric Energy Requirements for Post-Secondary Educational Facilities	244
Table AE-5	Electric Energy Requirements for Acute and Extended Care-Bed Hospitals	248
Table AF-1	Bulk Power Accounts Detail - Probable Electric Projected Sales	251
Table AF-2	Composition of Bulk Sales - Probable Projections - Lower Mainland Division	254
Table AF-3	Composition of Bulk Sales - Probable Projections - Central Interior Division	255
Table AF-4	Composition of Bulk Sales - Probable Projections - North Coast Division	256
Table AF-5	Composition of Bulk Sales - Probable Projections - South Interior Division	257
Table AF-6	Composition of Bulk Sales - Probable Projections - Vancouver Island Division	258
Table AG-1	Probable Projection of Electric Power Sales - Lower Mainland Division	261
Table AG-2	Probable Projection of Electric Power Sales - Central Interior Division	262
Table AG-3	Probable Projection of Electric Power Sales - North Coast Division	263
Table AG-4	Probable Projection of Electric Power Sales - South Interior Division	264
Table AG-5	Probable Projection of Electric Power Sales - Vancouver Island Division	265
Table AG-6	Historic and Probable Projections - Electric Energy Sales and Average Number of Customers - Lower Mainland Division	266
Table AG-7	Historic and Probable Projections - Electric Energy Sales and Average Number of Customers - Central Interior Division	267
Table AG-8	Historic and Probable Projections - Electric Energy Sales and Average Number of Customers - North Coast Division	268
Table AG-9	Historic and Probable Projections - Electric Energy Sales and Average Number of Customers - South Interior Division	269
Table AG-10	Historic and Probable Projections - Electric Energy Sales and Average Number of Customers - Vancouver Island Division	270

		Page
Table AH-1	Probable Projections of Power Districts' Peak Loads - Central Interior Division	274
Table AH-2	Probable Projections of Power Districts' Peak Loads - North Coast Division	275
Table AH-3	Probable Projections of Power Districts' Peak Loads - South Interior Division	276
Table AH-4	Probable Projections of Power Districts' Peak Loads - Vancouver Island Division	277
Table AH-5	Vancouver Island Integrated System 1982 Probable Forecast of Electric Gross Load Requirements With and Without Natural Gas	278
Table AI-1	Comparison of Load Projections; Probable vs High vs Low - Sept/82 vs Sept/81	287
Table AI-2	Non-Heating Component of Residential and General Average Annual Use Rates	288
Table AI-3	Space Heating Component of Residential and General Average Annual Use Rates	289
Table AI-4	Conversions of Houses from Oil to Natural Gas	290
Table AI-5	Conversions of Apartments from Oil to Natural Gas	291
Table AI-6	Residential and General Accounts with Space Heating Added to the Natural Gas System	292
Table AI-7	Net Interruptible Sales other than CNG	293
Table AI-8	Projections of Compressed Natural Gas; Low, Probable and High Projections - Lower Mainland	294
Table AI-9	Interruptible Load by Classification for Fiscal Year 1981/82	295
Table AI-10	Relationship between Net Residential Electric and Natural Gas Accounts in the Lower Mainland	296

B. C. HYDRO

SUMMARY OF

PROJECTIONS OF ELECTRIC AND GAS GROSS LOAD REQUIREMENTS

This summary presents B. C. Hydro's projections of electricity and natural gas gross load requirements for the 11-year period to 1992/93 in detail, and for the remaining 10 years to 2002/03 in terms of total sales by category. Low, probable and high projections are presented for electricity and natural gas consistent with the pessimistic, central and optimistic economic outlooks prepared by B. C. Hydro's Corporate Economist.

The probable electric energy requirements are forecast to increase at an average annual growth rate of 4.3% per year from 32 359 GW.h in fiscal 1981/82 to 51 150 GW.h in 1992/93. Growth in electric energy requirements from 1992/93 to 2002/03 is forecast to average 3.2% per year resulting in a 70 400 GW.h load at the end of the forecast period.

The tabulation below shows a direct comparison for the fiscal year 1992/93 between this probable load projection (September 1982) and the probable projections made in May 1982 and September 1981.

	September 1982	May 1982 Interim	September 1981
Electric Forecast			
Gross Electric Requirements 1992/93 (GW.h)	51 150	53 716	59 700
Slippage in 1992/93 Relative to Previous Forecast	1.5 yrs.	2 yrs.	
Average Annual Growth Rates 1981/82 to 1992/93 (%)	4.3	4.7	5.7

The reduction from the September 1981 Load Forecast to the May 1982 Interim Load Forecast results principally from a reduction in the eleven year forecast of GDP growth from an average of 4.2% per year, which was the basis of the September 1981 Load Forecast, to the present forecast of 3.1% per year. The reduction from the May 1982 Load Forecast to the September 1982 Forecast results primarily from:

- lower population growth, which is reflected in the Residential forecast;
- more detailed analysis of the Commercial and Institutional sector in the General Category; and
- lower requirements for Mining and Smelting and Petrochemicals in the Bulk Category.

The probable natural gas requirements are forecast to increase at a somewhat lower rate than electricity, averaging 2.8% per year from 938.2×10^6 billing units (BU) in fiscal 1981/82 to $1\ 274 \times 10^6$ BU in 1992/93. From 1992/93 to 2002/03 natural gas requirements are forecast to increase at an average rate of 2.9% per year resulting in sales of $1\ 700 \times 10^6$ BU at the end of the forecast period. This projection is lower than the one prepared last year as shown below:

	September 1982	September 1981
Gas Forecast		
Total Sales 1992/93 (BU × 10^6)	1 274	1 356
Average Annual Growth Rates 1981/82 to 1992/93 (%)	2.8	3.4

The reduction in the natural gas forecast is caused mainly by a large reduction in the interruptible component of the forecast which in turn is the result of:

- the increasing likelihood that major natural gas consuming projects will not be located in the Lower Mainland area as a result of strong public environmental concerns; and
- a lower forecast of economic growth.

The major components of the probable electric and natural gas projections and the low and high projections are presented in the balance of this summary.

ELECTRIC SERVICE

Since the completion of the September 1981 Load Forecast, B. C. Hydro has implemented a number of changes in the methods used to prepare the electric energy forecast. This process started with reviews of the methodology in use last year, recommendations for improvements, and the formation of a Load Forecast Committee to monitor the preparation of the forecast. In January 1982 work started on implementing the revised methodology and the first results were issued in May in the form of an Interim Forecast.

The techniques used to arrive at both the May Interim and September 1982 Load Forecasts are in many ways similar to those used in 1981 and previous years but generally the depth and level of detail of the analyses have been increased. This work has been undertaken by the responsible departments in B. C. Hydro who in turn have retained consultants for certain aspects of the work. These include Monenco Consultants Pacific Ltd. with Confer Consulting Ltd. as a sub-consultant to assist in the overall preparation of the forecast; Wright Engineers Limited with H. R. Halvorson Consultants Ltd. as sub-consultant to prepare forecasts of economic activity and future electricity requirements in the metals mining and smelting sector; and Woodbridge, Reed and Associates Ltd. with H. A. Simons (International) Ltd. as a sub-consultant to prepare forecasts of economic activity and electricity requirements in the forestry sector.

The major changes in the load forecasting methods have been:

- greater emphasis in estimating the likely level of future energy prices and the resulting impact of changes in electricity use;
- development of a residential forecasting model to facilitate more in-depth analysis of this category;
- more detailed analysis of general sales, relating the various components of this category to the growth in certain industrial activity, to growth in commercial floor space requirements and the changing electrical requirements in new buildings, and to certain segments of population; and
- assessments of the growth and electrical requirements of the major industrial sectors based on the resource base and world market, including coal mining and petrochemicals in addition to forestry and metals mining and smelting.

In addition DataMetrics Limited has been retained to prepare a total energy forecast using an econometric approach and National Economic Research Associates, Inc. (NERA) was retained to estimate ranges of price elasticities for the various components of B. C. Hydro load. Work has also been undertaken to relate the B. C. Hydro "top down/end use" approach to econometric techniques used by DataMetrics and NERA.

The principal components of the September 1982 Load Forecast up to 1992/93, and the historic growth rates experienced, are summarized below.

	Actual 1981/82 Sales	Average Growth 1971/72 to 1981/82	1992/93 Sales	Average Growth 1981/82 to 1992/93
	GW.h	(%/yr.)	GW.h	(%/yr.)
Residential	8 640	6.8	11 735	2.8
General	9 706	6.3	13 540	3.1
Bulk	9 339	4.8	17 295	5.8
Total Res., Gen. & Bulk	27 685	5.9	42 570	4.0
Other	609	-	887	3.5
WKP&L	14	-	1 870	-
Total Billed Sales	28 308	5.7	45 327	4.4
Losses & Accruals	4 051	-	5 823	-
Total Gross Requirements	32 359	6.1	51 150	4.3

Residential sales are forecast to grow at less than half their historic rate reflecting an essentially constant use per household over the forecast period. Although households will tend to have more appliances, and a growing percentage of households will use electric heat, these potential increases in use are offset by improved appliance efficiencies, higher levels of insulation and a trend towards apartments and row houses.

The General Category, of which about one-third is small industrial such as sawmills and two-thirds is commerical and institutional such as office buildings, stores and schools, is also forecast to grow at less than half its historic rate. The lower growth rate is due to projections of achieving full utilization of the available wood resource which slows growth in the small industrial sector and, more significantly, projections of moderate growth in floorspace combined with lower unit electricity requirements in new buildings in the commercial and institutional sector.

Of the increase in total billed sales of some 17 000 GW.h between 1981/82 and 1992/93, approximately 8 000 GW.h are in the Bulk Category resulting in a growth rate of 5.8% per year compared to a historic growth rate of 4.8% per year for this category. This apparent anomaly between declining growth rates in the Residential and General Categories but a higher growth rate in the Bulk Category is caused by the electrical intensity of the new bulk loads and the depressed level of bulk sales in 1981/82 as the result of a forestry strike.

The tabulation below shows the forecast increases in the electric energy requirements for each of the main industrial sectors in the Bulk Category.

	Actual 1981/82 Sales GW.h	1992/93 Sales GW.h	Increase in Sales from 1981/82 to 92/93 GW.h	Average Annual Growth Rate 1981/82 to 92/93 (%/year)
Pulp & Paper and Wood Mfg	4 494	7 790	3 296	5.1
Chemicals for Pulp & Paper	1 241	1 560	319	2.1
Minerals Mining	2 637	3 300	663	2.1
Smelting	-	390	390	-
Coal Mining	326	1 300	974	13.4
Petrochemicals	-	1 780	1 780	-
Other	641	1 175	534	5.7
Total	9 339	17 295	7 956	5.8

The additional requirements of the pulp and paper and wood manufacturing sector account for over 40% of the total increase in bulk sales. The assessment of the resource base and market trends for this sector identified thermo-mechanical pulp (TMP) and chemi-thermo-mechanical pulp (CTMP) as the processes best suited to utilize and upgrade British Columbia's remaining wood resource base.

Whereas chemical pulp utilizes less than 50% of the wood fibre and requires both heat and mechanical energy, TMP and CTMP utilize over 90% of the wood fibre and require mostly mechanical energy for grinding. The absence of wood wastes to fuel self generation and the greater need for mechanical energy result in purchased electric energy requirements per tonne of TMP and CTMP being about five times those for chemical pulp.

Currently, six mills have installed TMP and CTMP capacity. Of the 3 300 GW.h increase in sales to this sector, 2 200 GW.h are required to bring these mills, and other existing mills, to full production. The remaining 1 100 GW.h of the increase is to serve new TMP and CTMP capacity forecast to come on stream in the late 1980's and early 1990's.

With essentially all the growth in output in the pulp and paper industry in mechanical pulp production rather than in chemical pulp production, growth in the chemical industry is modest. The increase of some 300 GW.h is all for existing plants.

The metals mining sector is also forecast to have modest growth. This outlook is based on an analysis of major British Columbia mineral deposits at existing and potential sites combined with an assessment of market volume, price and foreign competition. Growth in electric energy requirements for this sector, which are primarily related to copper production, is divided evenly between increased production at existing mines and new mines.

Of the 390 GW.h growth for smelting, 230 GW.h is to meet the load of a copper smelter projected to come on stream in 1990, and the remaining 160 GW.h is for Cominco's requirements starting in 1986/87. At the present time, smelting loads, which amount to some 6 500 GW.h in the province, are supplied by self generation.

British Columbia coal mining capacity will approximately double over the next two years as the northeast mines come on stream and expansions in the southeast are completed. As coal output expands to utilize this capacity the electric energy requirements are projected to increase from the 1981/82 level of 326 GW.h to some 800 to 900 GW.h in the late 1980's. The balance of the increase in electric energy requirements for coal mining to 1992/93, 400 to 500 GW.h, is due to planned expansions and increasing electric energy requirements per tonne of production.

The electric energy requirements for the petrochemical sector are projected to reach 1 780 GW.h in 1992/93 with an LNG project, at 1 050 GW.h, being the largest component. Approval from the British Columbia government has been received for this project and a sales contract has been signed with Japanese utilities which will use the LNG for base load electric energy generation in accordance with Japanese energy policy. The other major petrochemical loads are a natural gas liquids extraction plant and an ethylene and derivatives plant. These projects are based, respectively, on British Columbia's resource base and market developments for petrochemicals in the Pacific Rim as current economic conditions improve.

"Other" bulk requirements, comprising oil refineries, cement plants, grain elevators, coal and other bulk commodity terminals, compression loads, rail electrification, UBC and others, are forecast to increase by about 500 GW.h over the period to 1992/93 reflecting growth across these sectors but particularly in bulk terminals.

The combined average load growth for the Residential, General and Bulk is 4.0% per year. Other sales, including street lighting, irrigation, firm exports, inter-utility and own use, are forecast to grow at 3.5% per year, and sales to West Kootenay Power and Light (WKP&L) are forecast to increase from 14 GW.h to 1 870 GW.h. Up to 1981/82 WKP&L has met its load from its own generating capacity and purchases from Cominco. Over the forecast period B. C. Hydro will be supplying WKP&L's new loads. B. C. Hydro's load growth including WKP&L's requirements of 1 870 GW.h in 1992/93 is 4.3% per year but without WKP&L would be 3.9% per year.

The following tables present the low and the high forecasts and their bases (TABLE E 1); the basis for the probable forecast of gross load requirements discussed here (TABLES E 2 through E 7); and the low, probable and high forecasts for the Integrated System (TABLE E 8).

TABLE E 1

B. C. HYDRO
PROJECTIONS OF ELECTRIC GROSS ENERGY REQUIREMENTS
TOTAL B. C. HYDRO
(GW.h)

	September 1982 Forecast					
		Probable				
Fiscal Year	Low GW.h	GW.h	(%/Year Growth)	High GW.h	May 1982 Probable GW.h	September 1981 Probable GW.h
1980/81 (Actual)	31 158	31 158		31 158	31 158	31 158
1981/82 (Actual)	32 359	32 359	(3.9)	32 359	32 359	32 359
1982/83	31 800	32 570	(0.7)	33 100	33 277	36 160
1983/84	33 600	34 320	(5.4)	35 400	36 334	38 690
1984/85	35 300	36 310	(5.8)	38 000	38 922	41 540
1985/86	36 600	38 060	(4.8)	40 100	40 644	43 690
1986/87	38 300	40 290	(5.9)	42 700	43 080	46 160
1987/88	39 500	42 120	(4.5)	45 000	44 977	48 410
1988/89	40 700	43 650	(3.6)	47 200	46 834	50 390
1989/90	41 500	45 340	(3.9)	49 300	48 579	52 670
1990/91	42 900	47 290	(4.3)	51 900	50 630	54 770
1991/92	44 000	49 570	(4.8)	55 000	52 089	57 090
1992/93	44 700	51 150	(3.2)	57 000	53 716	59 700
1993/94	45 600	52 900		59 500	55 593	62 300
1994/95	46 500	54 700		62 200	57 439	64 800
1995/96	47 700	56 600		65 000	59 438	67 300
1996/97	48 600	58 500		67 800	61 385	69 800
1997/98	49 600	60 500		70 600	63 271	72 300
1998/99	50 600	62 500		73 500	65 012	74 800
1999/2000	51 600	64 500		76 800	66 610	77 300
2000/01	52 400	66 400		79 400	68 296	79 800
2001/02	53 500	68 400		82 600	70 046	82 300
2002/03	54 600	70 400		85 600	71 800	84 800
Av. Ann. Growth: %						
11 Yrs: 81/82-92/93	3.0	4.3		5.3	4.7	5.7
10 Yrs: 92/93-02/03	2.0	3.2		4.2	2.9	3.6
21 Yrs: 81/82-02/03	2.5	3.8		4.7	3.9	4.7

The basis for the probable forecast is presented in Tables E2 through E7. The low, probable and high electrical forecasts are based on the following low, probable and high British Columbia population and GDP forecasts.

	Population Growth			Real GDP Growth		
	Low	Probable - %/yr. -	High	Low	Probable - %/yr. -	High
1981 to 1992	1.6	1.8	2.0	2.1	3.1	4.3
1992 to 2002	1.4	1.7	2.1	2.5	3.7	4.5

The low and high residential forecasts are prepared using the low and high population forecasts, and using lower and higher capture rates and use of appliances to alter use per household.

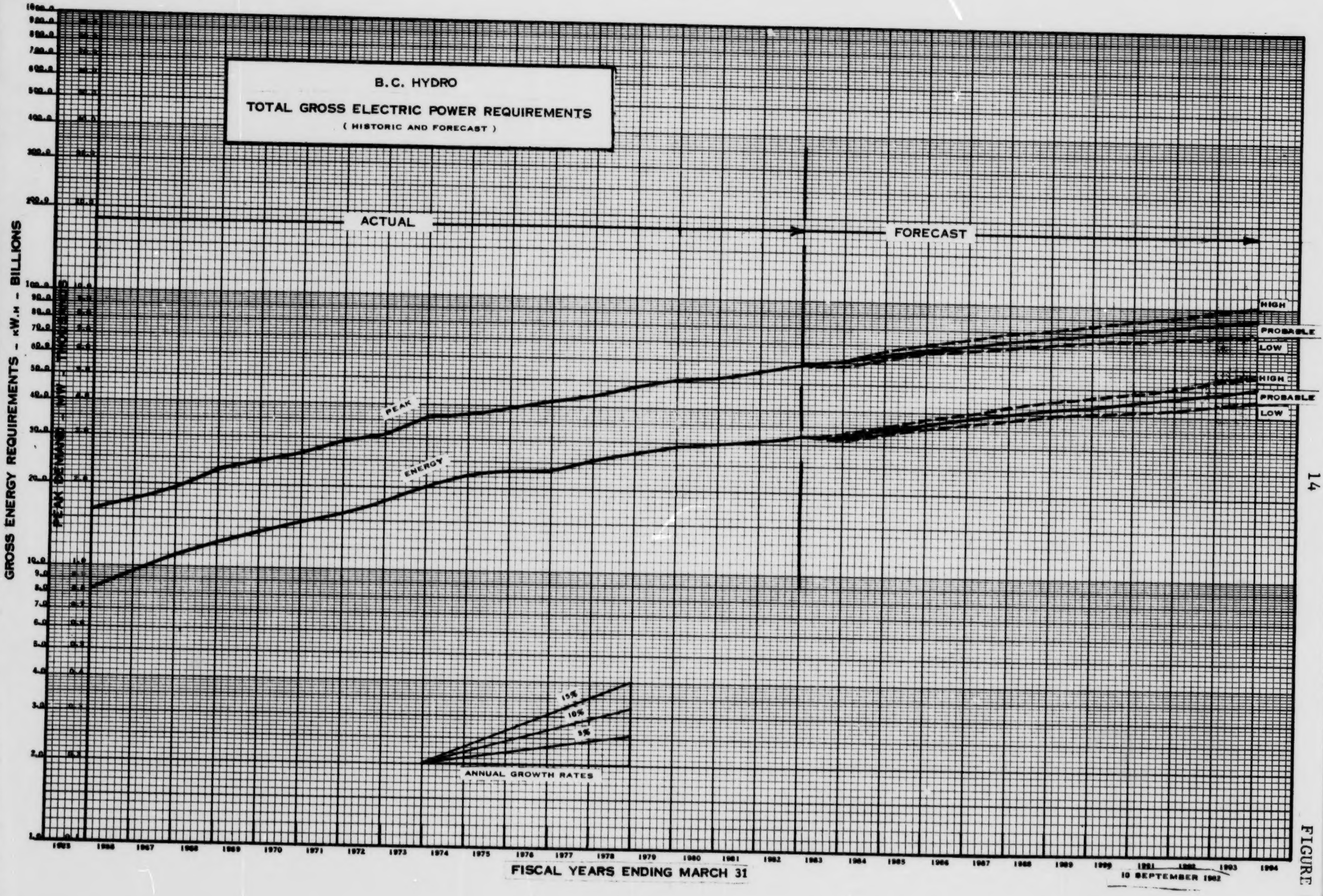
The low and high general forecasts are prepared by basing the portion (93%) of General Sales that is a function of GDP on the low and high GDP forecasts. The balance, i.e schools and hospitals, varies in proportion to the low and high population forecasts.

The high bulk forecast is estimated by increasing the probable bulk forecast by the ratio of high to probable GDP. The low bulk forecast is estimated by decreasing the probable bulk forecast by the ratio of low to probable GDP, by additional plant shutdowns in 1982/83 and 1983/84, and by eliminating some electrically intensive load throughout the forecast period.

All projections are based on the assumption that natural gas will be available on Vancouver Island in fiscal year 1986/87 which is the earliest date.

10 September 1982

FIGURE E-1


B.C. HYDRO
TOTAL GROSS ELECTRIC POWER REQUIREMENTS
(HISTORIC AND FORECAST)
ACTUAL
FORECAST
PEAK
ENERGY
HIGH
PROBABLE
LOW
HIGH
PROBABLE
LOW
15%
10%
5%
ANNUAL GROWTH RATES
GROSS ENERGY REQUIREMENTS - KW.H - BILLIONS
PEAK DEMAND - MW - THOUSANDS
1000.0
900.0
800.0
700.0
600.0
500.0
400.0
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200.0
100.0
90.0
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FISCAL YEARS ENDING MARCH 31
10 SEPTEMBER 1982

TABLE E 2

B. C. HYDRO
HISTORIC AND PROBABLE PROJECTIONS OF ELECTRIC POWER REQUIREMENTS BY SALES CATEGORIES

Fiscal Year	Residential (GW.h)	General (GW.h)	Bulk (GW.h)	Total Res. Gen. & Bulk (GW.h)	Other (GW.h)	WKP&L (GW.h)	Total Billed Sales (GW.h)	Losses & Accruals (GW.h)	Total Gross Requirements (GW.h)	Peak (MW)
HISTORIC										
1971/72	4 465	5 263	5 860	15 588	600[b]		16 188	1 742	17 930	3 130
1972/73	4 739	5 659	7 066	17 464	453		17 917	2 432	20 349	3 653
1973/74	5 176	6 378	7 776	19 330	470		19 800	2 656	22 456	3 739
1974/75	5 685	6 685	7 714	20 084	495		20 579	2 815	23 394	3 957
1975/76	6 258	7 062	6 808[a]	20 128	532		20 660	2 878	23 538	4 232
1976/77	6 625	7 592	8 166	22 383	541		22 924	3 072	25 996	4 421
1977/78	7 051	8 073	8 479	23 603	561		24 164	3 372	27 536	4 800
1978/79	7 492	8 512	9 133	25 137	583		25 720	3 628	29 348	5 122
1979/80	7 727	8 949	9 217	25 893	625		26 518	3 455	29 973	5 231
1980/81	8 042	9 344	9 597	26 983	581		27 564	3 594	31 158	5 511
1981/82	8 640	9 706	9 339[a]	27 685	609	14	28 308	4 051	32 359	5 939
Av. Ann. Growth: %										
10 Yrs: 71/72-81/82	6.8	6.3	4.8	5.9	-		5.7	-	6.1	6.6
PROJECTIONS										
1982/83	8 940	9 683	9 380	28 003	623	80	28 706	3 864	32 570	6 070
1983/84	9 208	10 042	10 250	29 500	646	120	30 266	4 054	34 320	6 470
1984/85	9 498	10 473	11 160	31 131	668	250	32 049	4 261	36 310	6 800
1985/86	9 805	10 821	11 800	32 426	691	500	33 617	4 443	38 060	7 070
1986/87	10 071	11 186	12 855	34 112	717	790	35 619	4 671	40 290	7 420
1987/88	10 337	11 539	13 740	35 616	744	900	37 260	4 860	42 120	7 660
1988/89	10 602	11 910	14 320	36 832	771	1 020	38 623	5 027	43 650	7 930
1989/90	10 886	12 296	15 010	38 192	798	1 140	40 130	5 210	45 340	8 190
1990/91	11 160	12 699	15 960	39 819	827	1 230	41 876	5 414	47 290	8 490
1991/92	11 444	13 126	16 725	41 295	856	1 770	43 921	5 649	49 570	8 880
1992/93	11 735	13 540	17 295	42 570	887	1 870	45 327	5 823	51 150[c]	9 150
2002/03	15 231	18 445	24 620	58 296	1 162	2 940	62 398	8 002	70 400	12 500
Av. Ann. Growth: %										
11 Yrs: 81/82-92/93	2.8	3.1	5.8	4.0	3.5	-	4.4	-	4.3	4.0
10 Yrs: 92/93-02/03	2.6	3.1	3.6	3.2	2.7	4.6	3.2	-	3.2	3.2
21 Yrs: 81/82-02/03	2.7	3.1	4.7	3.6	3.1	-	3.8	-	3.8	3.6
COMPARISON WITH PREVIOUS FORECASTS										
1992/93 Sales in:										
Sept. 1982 Forecast	11 735	13 540	17 295	42 570	887	1 870	45 327	5 823	51 150	9 150
May 1982 Forecast	12 421	13 896	18 415	44 732	991	1 940	47 663	6 053	53 716	9 455
Sept. 1981 Forecast	12 660	16 148	21 345	50 153	999	1 940	53 092	6 608	59 700	10 500
Av. Ann. Growth: %										
11 Yrs: 80/81-91/92										
Sept. 1982 Forecast	3.3	3.1	5.2	3.9	3.6	-	4.3	-	4.3	-
May 1982 Forecast	3.8	3.4	5.8	4.4	3.9	-	4.8	-	4.8	-
Sept. 1981 Forecast	3.9	4.7	7.0	5.4	4.7	-	5.7	-	5.7	-

[a] There were forestry industry strikes in 1975/76 and 1981/82 causing reductions in bulk sales.

[b] Includes 172.9 GW.h sales of surplus thermal energy to U.S.B.R. under E.L. 48 in 1971/72 only.

[c] The 1992/93 electricity requirements in this forecast have slipped by three and one-half years relative to the September 1981 forecast and by one and one-half years relative to the May 1982 Interim Forecast.

10 September 1982

MR23

FIGURE E-2

FIGURE E-2

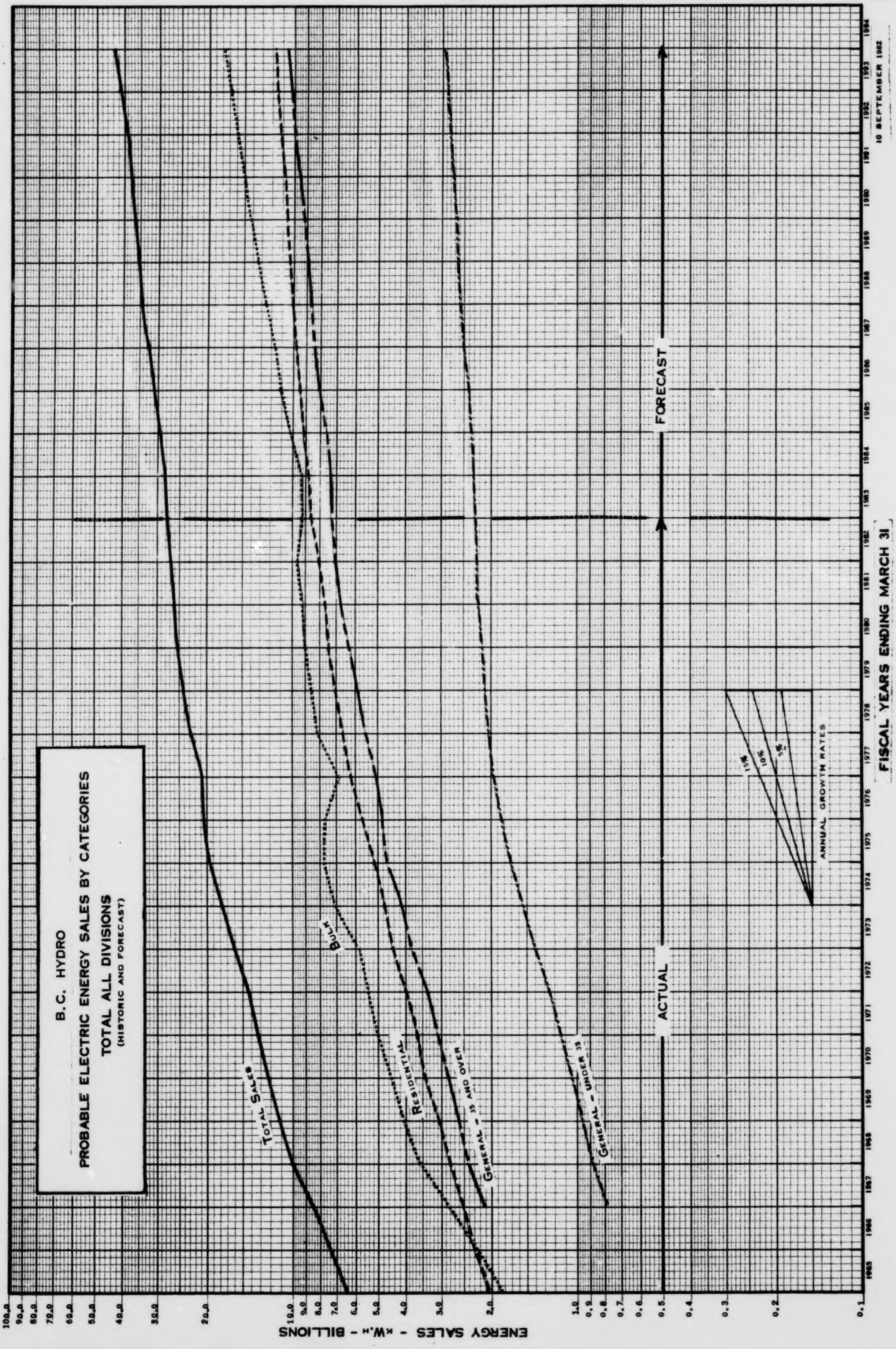


TABLE E 3

BRITISH COLUMBIA
DEMOGRAPHIC AND ECONOMIC FORECASTS

HISTORIC TRENDS

Calendar Year	Population (Thousands)	Labour Force (Thousands)	Unemployment Rate (percent)	GDP (Billions of 1971 Dollars)
1981 (Actual)	2 744	1 337	6.7	16.6
Av. Ann. Growth: % 10 Yrs: 1971-1981	2.3			4.7
JULY 1982 FORECAST				
1982	2 785	1 350	10.1	16.3
1983	2 826	1 380	9.8	16.8
1984	2 873	1 430	8.8	17.5
1985	2 923	1 490	8.6	18.2
1986	2 979	1 530	8.6	18.9
1987	3 036	1 564	7.6	19.6
1988	3 094	1 600	7.6	20.2
1989	3 154	1 636	7.6	21.0
1990	3 215	1 672	7.6	21.7
1991	3 277	1 710	7.6	22.4
1992	3 335	1 750	7.4	23.3
Av. Ann. Growth: % 11 Yrs: 1981-1992	1.8	2.5		3.1
2001	3 900	2 210	7.4	32.2
Av. Ann. Growth: % 9 Yrs: 1992-2001	1.8	2.6	7.4	3.7
COMPARISON WITH PREVIOUS FORECASTS*				
Av. Ann. Growth: % 10 Yrs: 1981-1991				
July 1982	1.8			3.1
April 1982	2.1			3.1
July 1981	2.0			4.2

* 1982 is the first year in which a 20 year forecast is made.

TABLE E 4

BRITISH COLUMBIA ENERGY PRICES
(1981 Dollars)

Fiscal Year	B. C. Hydro Average Selling Price Electricity[a] (¢/kW.h)	B. C. Hydro Average Selling Price Natural Gas[b] ($/GJ)	Vancouver Blended Crude Oil[c] ($/bbl)
Actual			
1971/72	3.26	2.04	7.82
1976/77	2.83	1.95	13.33
1981/82	3.08	3.25	28.25
1982/83 (April to Date)	3.41	3.42	-
Forecast			
1982/83	3.64	3.70	31.17
1983/84	3.82	3.54	33.20
1984/85	4.44	3.35	33.91
1985/86	4.40	3.34	34.37
1986/87	4.18	3.52	34.59
1987/88	3.98	3.68	35.01
1988/89	3.80	3.64	35.83
1989/90	3.80	3.59	36.17
1990/91	3.80	3.55	36.50
1991/92	3.80	3.54	36.75
1992/93	3.80	3.81	37.04
2001/02	4.00	4.17	42.60

[a] The forecast average selling prices, i.e. unit revenue requirements, are based on a series of financial analyses using sales forecasts with average annual growth from 1981/82 in the 4.3% to 4.8% range to 1992/93 and in the 3.4% to 3.9% range to 2002/03, the capital, operating and financing costs incurred to meet these loads and an interest coverage ratio of 1.3.

[b] Price includes domestic field price, Westcoast tariff, B. C. Hydro cost of service and consumer excise taxes.

[c] Price includes real increases in world crude oil price after early 1980's, provisions of Federal/Provincial energy agreements, modest increases in Canadian crude oil demand, crude oil import compensation and federal excise taxes.

Energy Content: Electricity: 277.8 kW.h = 1 GJ
Crude Oil: .1634 barrel = 1 GJ

TABLE E 5

RESIDENTIAL ELECTRIC SALES PROJECTIONS
(Billed basis, no adjustment for accrual)

Year	Residential Accounts[a] (000)	Percent Electric Heating[b] (%)	Annual Average Use Per Account:[c] Non Electric Heating (kW.h)	Electric Heating (kW.h)	All Accounts (kW.h)	Total of Sales[d] (GW.h)
1980/81 (Actual)	900.0	13.1	7 888	15 907	8 935	8 042
1981/82 (Actual)	929.8	14.2	8 129	16 320	9 292	8 640
Av. Ann. Growth: % 10 Yrs: 71/72-81/82	4.3		2.0	-1.9	2.5	6.8
1982/83	953.9	15.2	8 160	16 125	9 370	8 940
1983/84	976.8	16.1	8 185	15 910	9 425	9 208
1984/85	1 002.9	17.0	8 190	15 705	9 470	9 498
1985/86	1 031.0	17.9	8 195	15 520	9 510	9 805
1986/87	1 060.4	18.7	8 165	15 305	9 495	10 071
1987/88	1 090.8	19.3	8 135	15 095	9 475	10 337
1988/89	1 121.6	19.8	8 105	14 910	9 455	10 602
1989/90	1 152.7	20.3	8 090	14 760	9 445	10 886
1990/91	1 184.0	20.7	8 065	14 620	9 425	11 160
1991/92	1 216.7	21.2	8 045	14 475	9 405	11 444
1992/93	1 249.7	21.6	8 025	14 340	9 390	11 735
Av. Ann. Growth: % 11 Yrs: 81/82-92/93	2.7	-	-0.1	-1.2	0.0	2.8

[a] Developed from the population forecast in Table E 3 by applying headship rates and factors to distribute households by type of dwelling. In 1981/82, the B. C. Hydro household dwelling mix was 65% houses, 3% row houses, 23% apartments, 5% mobile, and 4% seasonal. In 1992/93, the mix is forecast to be 59%, 6%, 27%, 4% and 4%, respectively.

[b] The relative costs of gas and electric space heating have been calculated based on rates presently paid by residential customers and increases in their rates in proportion to those shown in Table E 4. Although electricity rates increase more than gas in the first ten years, the relative heating costs are similar to the past eight years. As a result capture rates similar to historic values are assumed. These average 20% for single houses, 60% for row and 50% for apartments over the 1981/82 to 1992/93 period. The overall average, with gas available on Vancouver Island in 1986/87 and a net 100% electric capture rate prior to that date, is 43%.

[c] The electricity use for non-electrically heated households is a function of the projections of the numbers of appliances per household and the use per appliance. During the forecast period households are projected to have greater numbers of appliances but because they are more efficient the use per household does not increase. The decline in use for electrically heated households results from a greater proportion of row houses and apartments, and higher insulation levels in new dwellings.

[d] The total sales projected include the anticipated effects of conservation. Without the further conservation developments included in this forecast the 1992/93 residential sales would be 1150 GW.h higher.

10 September 1982

GENERAL ELECTRIC SALES PROJECTIONS
(Billed basis, no adjustment for accrual)

	Small Industrial[a] (GW.h)	Commercial & Institutional[b] (GW.h)	Unclassified[c] (GW.h)	Total (GW.h)
1980/81 (Actual)	n/a*	n/a	n/a	9 344
1981/82 (Actual)	2 710	5 295	1 701	9 706
Av. Ann. Growth: % 10 Yrs: 71/72-81/82	n/a	n/a	n/a	6.3
1982/83	2 550	5 416	1 717	9 683
1983/84	2 736	5 548	1 758	10 042
1984/85	2 974	5 681	1 818	10 473
1985/86	3 111	5 817	1 893	10 821
1986/87	3 226	5 999	1 961	11 186
1987/88	3 343	6 186	2 010	11 539
1988/89	3 464	6 380	2 066	11 910
1989/90	3 589	6 580	2 127	12 296
1990/91	3 718	6 789	2 192	12 699
1991/92	3 853	7 007	2 266	13 126
1992/93	3 991	7 212	2 337	13 540
Av. Ann. Growth: % 11 Yrs: 81/82-92/93	3.6	2.8	2.9	3.1

Ratios of Growth in General Sales to Growth in:[d]

		Small Industrial	Commercial & Institutional	Unclassified	Total
Population	1971-81	n/a	n/a	n/a	2.74
	1981-92	2.00	1.56	1.61	1.72
GDP	1971-81	n/a	n/a	n/a	1.34
	1981-92	1.16	0.90	0.94	1.00
Residential	1971/72-81/82	n/a	n/a	n/a	0.93
Sales	1981/82-92/93	1.29	1.00	1.04	1.11

[a] Small industrial sales in 1981/82 consist primarily of wood manufacturing (47%) and other manufacturing (40%). Wood manufacturing is forecast to grow at 4% to 1985 and only marginally thereafter due to resource limitations. Other manufacturing is forecast to grow at an average 2.7% to 1985; however, beyond 1985 the combined wood manufacturing and other are forecast to grow at GDP.

[b] Commercial & Institutional sales consist of schools, post-secondary education facilities and hospitals (together consuming 12% in 1981/82) and growing at 1.4% per year based upon growth in certain population age groups; Transportation, Communication, Utilities and Construction sales (18% in 1981/82) which grow at the GDP growth rate; and commercial buildings sales (70%) which grow at 3.0% per annum based on commercial floorspace growing at 1.5 times GDP to 1985/86 and at 1.25 times GDP for the period ending 1991/92 and 1.00 times GDP thereafter. Electrical use per unit of the new floorspace is forecast to be 0.80 the present use for additions up to 1985, 0.75 the present use from 1986 to 1990 and 0.70 for the nineties.

[c] Unclassified load is that portion of general sales which have not been classified by SIC code plus construction power for B. C. Hydro projects. The growth of the unclassified portion equals that of the combined small industrial and commercial/institutional loads.

[d] Comparisons of the historic and forecast ratios of the growth in general sales to growth in population, GDP and Residential Sales indicate:

(i) a reduction in future growth in general sales relative to population and GDP reflecting conservation;

(ii) a relationship between general commercial and institutional sales and residential sales reflecting a similar impact of conservation on both categories.

A historic breakdown of General Sales into Small Industrial and Commercial & Institutional Sales is not yet available, limiting the comparison of historic to forecast ratios to the total.

* n/a 'not available'

10 September 1982

TABLE E 7

BULK ELECTRIC SALES PROJECTIONS

Year	Pulp & Paper & Wood Mfg.[a] GW.h	Chemicals for Pulp & Paper[b] GW.h	Metals Mining & Smelting[c] GW.h	Coal Mining[d] GW.h	Petro-Chemicals[e] GW.h	Other[f] GW.h	Total[g] GW.h
1980/81 (Actual)	4 972	1 426	2 265	302	-	632	9 597
1981/82 (Actual)	4 494	1 241	2 637	326	-	641	9 339
Av. Ann. Growth: %							
10 Yrs: 71/72-81/82	1.6	2.7	14.3	10.5	-	9.3	4.8
1982/83	4 920	1 190	2 290	325	-	655	9 380
1983/84	5 270	1 280	2 500	460	-	740	10 250
1984/85	5 680	1 390	2 700	575	-	815	11 160
1985/86	5 940	1 450	2 900	660	-	850	11 800
1986/87	6 140	1 480	3 070	735	530	900	12 855
1987/88	6 340	1 510	3 260	840	820	970	13 740
1988/89	6 590	1 530	3 310	920	970	1 000	14 320
1989/90	6 890	1 550	3 360	1 010	1 150	1 050	15 010
1990/91	7 190	1 560	3 640	1 140	1 320	1 110	15 960
1991/92	7 490	1 560	3 690	1 220	1 620	1 145	16 725
1992/93	7 790	1 560	3 690	1 300	1 780	1 175	17 295
Av. Ann. Growth: %							
11 Yrs: 81/82-92/93	5.1	2.1	3.1	13.4	-	5.7	5.8

[a] The reduction in sales from 1980/81 to 1981/82 of some 500 GW.h was a result of the 1.5 month strike in this sector. The 2800 GW.h increase in 1992/93 over 1980/81 is due to large increases in TMP/CTMP production which requires approximately five times as much purchased electricity per tonne as chemical pulp.

[b] The requirements of the pulp and paper chemical industry are forecast to be essentially constant after the 1980's reflecting the lack of growth in chemical pulps.

[c] The increase in metals, mining and smelting is the result of 320 GW.h for Bethlehem/Valley Copper, 390 GW.h for smelting and 340 GW.h for increases in output at present mines. Of the 3690 GW.h requirement in 1992/93 approximately 3000 GW.h is for copper mining.

[d] The additional 1000 GW.h of sales for coal mining to 1992/93 includes 380 GW.h for Northeast Coal (Bullmoose and Quintette) with the balance accounted for by expansion of existing mines and new mines in the southeast.

[e] Petrochemicals includes an LNG project (1050 GW.h), a world scale ammonia plant (90 GW.h), a natural gas liquids extraction facility (300 GW.h), and an ethylene and derivatives plant (340 GW.h in 1992/93, 430 GW.h full load). A world scale methanol project does not require enough electricity to be a bulk customer.

[f] Other bulk customers are oil refineries, cement plants, grain elevators, coal and other bulk commodity terminals, compression loads, UBC and other loads. Growth during the 1980's is estimated by identifying specific projects and their electric energy requirements.

[g] Comparison of Growth in B. C. Hydro Bulk Sales to Total Provincial Industrial Use and GDP.

	B. C. Hydro Bulk Sales GW.h	Estimated Self Generation Used by Industry (Excluding Aluminum Smelters) GW.h	Total GW.h	GDP (1971 $ 10^9)	Ind. Use/$GDP
1967/68	4 093	5 000	9 093	8.5	1 070
1980/81	9 597	4 500	14 097	16.2	870
1981/82	9 339	4 300	13 639	16.6	820
1992/93	17 295	6 500	23 800	23.3	1 020
2002/03	24 620	7 100	31 700	33.4	950
Av. Ann. Growth: %					
13 Yrs: 67/68-80/81	5.6	-0.7	3.2	4.7	-
12 Yrs: 80/81-92/93	5.0	3.1	4.5	3.1	-

B. C. HYDRO
PROJECTIONS OF ELECTRIC GROSS LOAD REQUIREMENTS
INTEGRATED SYSTEM

	September 1982 Forecast						September 1981	
	Low		Probable		High		Probable	
Fiscal Year	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)
1980/81 (Actual)	5 475	30 996	5 475	30 996	5 475	30 996	5 475	30 996
1981/82 (Actual)	5 902	32 186	5 902	32 186	5 902	32 186	5 902	32 186
1982/83	5 890	31 600	6 040	32 400	6 130	32 900	6 290	35 975
1983/84	6 290	33 400	6 430	34 150	6 630	35 200	6 800	38 495
1984/85	6 570	35 100	6 760	36 130	7 070	37 800	7 280	41 335
1985/86	6 750	36 400	7 030	37 875	7 400	39 900	7 670	43 475
1986/87	7 010	38 100	7 380	40 100	7 820	42 500	8 030	45 935
1987/88	7 140	39 300	7 620	41 920	8 140	44 800	8 410	48 170
1988/89	7 350	40 500	7 880	43 440	8 530	47 000	8 760	50 135
1989/90	7 450	41 300	8 140	45 120	8 850	49 100	9 130	52 420
1990/91	7 650	42 700	8 440	47 060	9 270	51 700	9 520	54 505
1991/92	7 840	43 800	8 830	49 330	9 810	54 800	9 910	56 810
1992/93	7 950	44 500	9 100	50 900	10 150	56 800	10 430	59 400
11 Yr. Av. Ann. Energy Growth % (1981/82-1992/93)		3.0		4.3		5.3		5.7
1993/94	8 040	45 300	9 340	52 600	10 540	59 200	10 930	62 000
1994/95	8 240	46 200	9 740	54 400	11 040	61 900	11 420	64 500
1995/96	8 440	47 400	10 040	56 300	11 540	64 700	11 870	67 000
1996/97	8 640	48 300	10 340	58 200	12 040	67 500	12 320	69 400
1997/98	8 840	49 300	10 740	60 200	12 540	70 300	12 760	71 900
1998/99	9 040	50 300	11 140	62 200	13 140	73 200	13 210	74 400
1999/2000	9 140	51 300	11 440	64 200	13 640	76 500	13 650	76 900
2000/01	9 240	52 100	11 740	66 100	14 040	79 100	14 100	79 400
2001/02	9 440	53 200	12 140	68 100	14 640	82 300	14 590	81 900
2002/03	9 640	54 300	12 440	70 100	15 140	85 300	-	-
20 Yr. Av. Ann. Energy Growth % (1981/82-2001/02)		2.5		3.8		4.8		4.8
21 Yr. Av. Ann. Energy Growth % (1981/82-2002/03)		2.5		3.8		4.8		

10 September 1982

GAS SERVICE

The gas service forecasts are presented in metric units. The basic unit of gas measurement in the metric system is the Joule (J). The metric unit adopted by B. C. Hydro for billing purposes is called the Billing Unit (BU) which is equal to 10^8 J or 0.1 GJ. The conversion of imperial units to the metric system is based on the relationship British Thermal Units (BTU) × 1 054.6 equals Joules.

1. Three projections have been prepared for natural gas sales on the Lower Mainland for the 20 year period ending 2002/03 viz a probable, low and high forecast. These three projections are the same for the Liquid Petroleum Gas (LPG) load in Victoria. System plans and operating budgets will be based on the probable forecast. General long range financial analyses will also be prepared on the probable forecast and, if required, on the low and high forecasts as well.

2. The projections for natural gas shown in attached TABLES G1 and G2 do not include sales of natural gas on Vancouver Island. The decision to proceed with the Vancouver Island pipeline project has not yet been made at the present time and will be the subject of future public hearings. The location of the pipeline crossing, which company would build and operate the underwater pipeline and who would transmit and distribute natural gas on Vancouver Island are also questions yet to be answered. For these reasons this potential future load has not been included.

3. TABLES G1 and G2 are based on the assumption that Compressed Natural Gas (CNG) will be actively promoted for automotive purposes and that this fuel will be very competitive with gasoline. TABLE G3 shows the anticipated CNG load broken down into firm and interruptible components. The demand for CNG is essentially based on the projections prepared for B. C. Hydro by Canadian Resourcecon Limited in December 1981. The demand in the first seven years has been reduced somewhat. In 1992/93 the CNG load is expected to make up 3.5% of the total load and in 2002/03 about 5.2%.

4. TABLE G1 shows the current probable, low and high projections as well as the probable forecast prepared in September 1981 for comparison. The history of normalized sales is based on the firm load normalized for weather and the interruptible load normalized for weather, adjusted for strikes and 30 days of curtailment. Relative to this normalized sales volume, the current average annual growth rates (with last year's growth rates shown in brackets) are as follows:

	1981/82 to 1992/93		1992/93 to 2002/03		1981/82 to 2002/03	
	Sept/82	Sept/81	Sept/82	Sept/81	Sept/82	Sept/81
Probable	2.8 %	(3.4 %)	2.9 %	(3.4 %)	2.9 %	(3.4 %)
Low	1.9 %	(2.5 %)	2.3 %	(2.9 %)	2.1 %	(2.7 %)
High	3.7 %	(4.8 %)	3.5 %	(3.9 %)	3.6 %	(4.4 %)

The firm and interruptible loads in 1992/93 for the two probable forecasts compare as follows:

	Sales (10^6 BU)		1981/82 to 1992/93 Av. Ann. Growth Rates (%)	
	Sept/82	Sept/81	Sept/82	Sept/81
Basic Firm	1,007.6	987.6	3.1	2.9
Interruptible	266.1	368.0	2.0	5.0
Total	1,273.7	1,355.6	2.8	3.4

The current projections are significantly lower than the ones prepared last year. This is essentially due to a large reduction in the interruptible component of the load compared with last year. The two main reasons for this are:

(a) It is becoming increasingly evident that it is not very likely that major natural gas consuming projects will be located in the Lower Mainland area as a result of strong public environmental concerns.

(b) The major effort made this spring to entice former interruptible customers as well as large firm customers to switch to the interruptible tariff was only marginally successful.

5. It is not intended to list the detailed assumptions upon which the three projections are based in this summary. These will be listed in Appendix I of this document. The major ones are as follows:

(a) The residential component of the load in the three projections are closely related to the population forecasts contained in B. C. Hydro's Long Term Economic Outlook published in 1982.

(b) The general component of the load in the three forecasts are based on the GPDP projections shown in the same document.

(c) The residential electric and natural gas forecasts were closely integrated for the Lower Mainland area.

(d) The relative prices of electricity, natural gas and oil in the residential market have been determined for the forecast period. They indicate that natural gas is expected to maintain its competitive position in the new housing market relative to electricity.

(e) The effect of energy conservation on the residential and commercial load has been reassessed in light of the most recent information obtained from the Energy Services Division of B. C. Hydro.

(f) The rate of conversions of residential dwellings from oil to natural gas has been reduced relative to last years assumptions on the basis of recent performance, the current economic recession, high interest rates, incentives provided by the Federal Government and cost relationships of alternative energy forms for space heating.

(g) Capture rates for the various types of dwellings have been determined considering past performance, capital cost differences, differences in operating cost, rent control and the availability of high efficiency equipment.

(h) The recent shift from single family dwellings to row houses and apartments is expected to continue although to a less extreme degree than occurred recently. The composition of the new housing mix that came on the market in the Lower Mainland in 1981/82 was as follows: singles 26%, duplexes 3%, row houses 18% and apartments 54%. The relative market shares in 1992/93 were assumed to be: singles 34%, duplexes 3%, row houses 20% and apartments 43%. The validity of this trend was also confirmed in discussions with authorities in the housing industry.

(i) LPG sales on Vancouver Island are expected to reach system capacity in 1983/84 and stay at that level from then on. As was stated earlier under (2), the projection of gas sales in the Victoria area does not include the assumption that natural gas will be available on Vancouver Island.

6. TABLE G2 attached shows the 20 year probable natural gas sales projection broken down in basic firm sales and interruptible sales. Total sales shows a historic average annual compound growth rate of 4.5 % which compares with an anticipated growth rate of 2.9 % for the next 21 year period.

TABLE G 1

B. C. HYDRO
PROJECTIONS OF NATURAL GAS AND L.P. GAS SALES
LOWER MAINLAND - VANCOUVER ISLAND

(Lower Mainland Projections Includes CNG)
(Billed basis, no adjustment for accrual)
(Thousand BU)[a, b]

Fiscal Year	1982 Low Projection Prepared September 1982		1982 Probable Projection Prepared September 1982		1982 High Projection Prepared September 1982		1981 Probable Projection Prepared September 1981	
	Lower Mainland Natural Gas	Vancouver Island L.P. Gas	Lower Mainland Natural Gas	Vancouver Island L.P. Gas	Lower Mainland Natural Gas	Vancouver Island L.P. Gas	Lower Mainland Natural Gas	Vancouver Island L.P. Gas
1981/82 (Actual)	939 697	3 315	939 697	3 315	939 697	3 315	939 697	3 315
(Actual Normalized)[c]	938 225		938 225		938 225		938 225	
1982/83	941 720	3 749	945 690	3 749	948 790	3 749	964 910	3 207
1983/84	971 530	4 014	982 570	4 014	993 170	4 014	1 008 860	3 152
1984/85	997 910	4 014	1 018 030	4 014	1 039 430	4 014	1 045 240	3 104
1985/86	1 012 870	4 014	1 044 800	4 014	1 079 200	4 014	1 081 840	3 056
1986/87	1 031 700	4 014	1 077 050	4 014	1 123 450	4 014	1 120 490	3 012
1987/88	1 052 740	4 014	1 112 310	4 014	1 170 310	4 014	1 158 600	2 988
1988/89	1 072 370	4 014	1 145 140	4 014	1 216 540	4 014	1 195 480	2 983
1989/90	1 091 870	4 014	1 176 120	4 014	1 262 020	4 014	1 234 000	2 983
1990/91	1 110 560	4 014	1 209 880	4 014	1 310 680	4 014	1 273 380	2 983
1991/92	1 129 290	4 014	1 240 820	4 014	1 357 120	4 014	1 314 200	2 983
1992/93	1 152 120	4 014	1 273 750[d]	4 014	1 405 850	4 014	1 355 560	2 983
1993/94	1 175 910	4 014	1 307 570	4 014	1 455 070	4 014	1 398 630	2 983
1994/95	1 202 000	4 014	1 344 620	4 014	1 506 120	4 014	1 443 340	2 983
1995/96	1 229 780	4 014	1 383 790	4 014	1 558 690	4 014	1 493 500	2 983
1996/97	1 258 060	4 014	1 425 050	4 014	1 612 350	4 014	1 545 180	2 983
1997/98	1 287 570	4 014	1 468 330	4 014	1 669 930	4 014	1 599 070	2 983
1998/99	1 317 290	4 014	1 512 020	4 014	1 727 120	4 014	1 654 200	2 983
1999/00	1 348 650	4 014	1 557 390	4 014	1 786 790	4 014	1 711 700	2 983
2000/01	1 380 780	4 014	1 604 290	4 014	1 848 690	4 014	1 769 410	2 983
2001/02	1 413 440	4 014	1 651 170	4 014	1 911 170	4 014	1 829 300	2 983
2002/03	1 446 320	4 014	1 699 050[d]	4 014	1 974 550	4 014	1 891 010	2 983
Av. Ann. Growth: % (Normalized Base)								
11 Yrs: 81/82-92/93	1.9	-	2.8	-	3.7	-	3.4	-
10 Yrs: 92/93-02/03	2.3	-	2.9	-	3.5	-	3.4	-
21 Yrs: 81/82-02/03	2.1	-	2.9	-	3.6	-	3.4	-

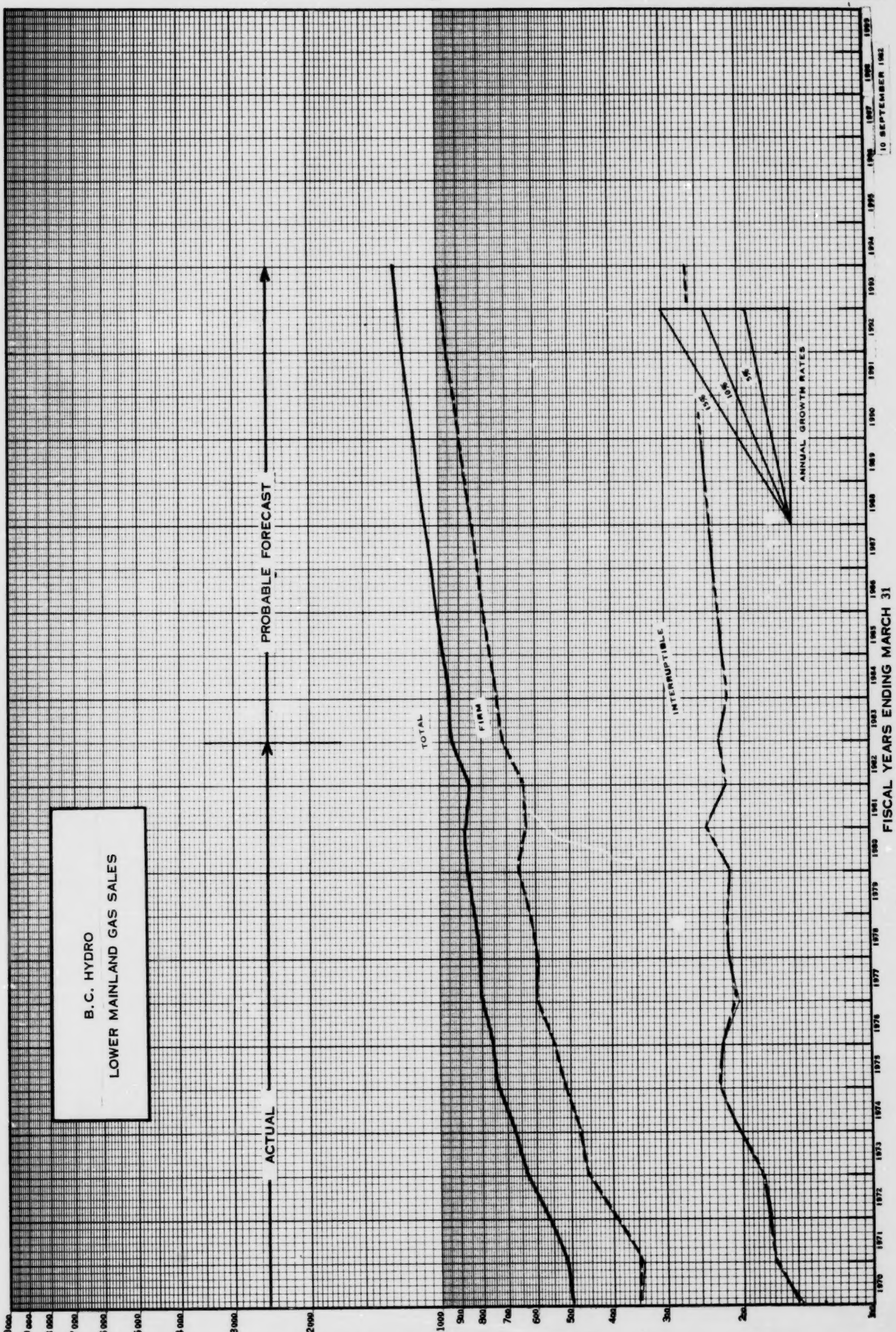
NOTES:

[a] BU = Billing Unit = 10^8 Joules.
[b] Imperial to metric conversion for information: 1 BTU = 1,054.6 Joules.
[c] Normalized for weather and normal 30 day curtailment of interruptible sales.
[d] In 1992/93 the CNG load is expected to make up 3.5% of the total load and in 2002/03 about 5.2%.

10 September 1982

FIGURE G-1

FIGURE G-1



B. C. HYDRO

TABLE G 2

HISTORY AND PROBABLE PROJECTION OF NATURAL GAS SALES

(Excludes L.P. Gas Sales on Vancouver Island
but includes CNG Sales on Lower Mainland)
(10^3 BU)

Fiscal Year	Basic Firm		Interruptible				Total	
	Actual Volume	Normal Volume	Actual Volume	Actual Days Curtailed	Normal Volume	Normal Days Curtailed	Actual Volume	Normal Volume
1971/72	454 866	424 390	177 459	38	182 249	30	632 325	606 639
1972/73	470 887	451 110	201 018	28	200 321	30	671 905	651 431
1973/74	513 048	510 996	224 658	12	214 600	30	737 706	725 596
1974/75	540 955	538 250	222 016	18	216 334	30	762 971	754 584
1975/76	599 349	571 180	201 501	16.8	205 923	30	800 850	777 103
1976/77	592 464	606 683	213 352	15.5	213 566	30	805 816	820 249
1977/78	618 131	627 403	214 895	23.5	211 746	30	833 026	839 149
1978/79	656 217	643 749	212 818	40.8	224 503	30	869 035	868 252
1979/80	630 923	630 923	240 268	17.9	231 667	30	871 191	862 590
1980/81	642 196	681 370	217 577	9.4	222 109	30	859 773	903 479
1981/82	714 853	723 260	224 844	2.8	214 965	30	939 697	938 225
Av. Ann. Growth: %								
10 Yrs:								
71/72-81/82	4.6	5.5	2.4		1.7		4.0	4.5
1982/83		730 560			215 130			945 690
1983/84		762 550			220 020			982 570
1984/85		792 500			225 530			1 018 030
1985/86		814 130			230 670			1 044 800
1986/87		841 540			235 510			1 077 050
1987/88		871 900			240 410			1 112 310
1988/89		899 670			245 470			1 145 140
1989/90		925 760			250 360			1 176 120
1990/91		953 790			256 090			1 209 880
1991/92		979 780			261 040			1 240 820
1992/93		1 007 630			266 120			1 273 750
1993/94		1 036 560			271 010			1 307 570
1994/95		1 068 620			276 000			1 344 620
1995/96		1 102 680			281 110			1 383 790
1996/97		1 138 810			286 240			1 425 050
1997/98		1 176 840			291 490			1 468 330
1998/99		1 215 350			296 670			1 512 020
1999/00		1 255 630			301 760			1 557 390
2000/01		1 297 130			307 160			1 604 290
2001/02		1 338 680			312 490			1 651 170
2002/03		1 380 940			318 110			1 699 050
Av. Ann. Growth: %								
11 Yrs: 81/82-92/93		3.1			2.0			2.8
10 Yrs: 92/93-02/03		3.2			1.8			2.9
21 Yrs: 81/82-02/03		3.1			1.9			2.9

TABLE G 3

B. C. HYDRO
PROJECTIONS OF COMPRESSED NATURAL GAS
LOWER MAINLAND

(included in Low, Probable and High Total Projections)
(Thousand BU)[a]

Fiscal Year	LOW PROJECTION			PROBABLE PROJECTION			HIGH PROJECTION		
	Firm	Interruptible	Total	Firm	Interruptible	Total	Firm	Interruptible	Total
1981/82	-	-	-	-	-	-	-	-	-
1982/83	20	70	90	30	130	160	30	130	160
1983/84	80	390	470	290	720	1010	290	720	1 010
1984/85	270	1 070	1 340	930	1 930	2 860	930	1 930	2 860
1985/86	1 100	1 410	2 510	3 670	2 570	6 240	3 670	2 570	6 240
1986/87	2 630	1 490	4 120	8 760	2 710	11 470	8 760	2 710	11 470
1987/88	4 640	1 660	6 300	15 460	3 010	18 470	15 460	3 010	18 470
1988/89	6 760	1 960	8 720	22 520	3 570	26 090	22 520	3 570	26 090
1989/90	8 690	2 110	10 800	27 590	3 860	31 450	27 590	3 860	31 450
1990/91	9 680	2 220	11 900	33 530	4 890	38 420	33 530	4 890	38 420
1991/92	9 920	2 310	12 230	36 220	5 040	41 260	36 220	5 040	41 260
1992/93	10 160	2 410	12 570	39 080	5 220	44 300	39 080	5 220	44 300
1993/94	10 390	2 530	12 920	42 170	5 410	47 580	42 170	5 410	47 580
1994/95	10 640	2 640	13 280	45 500	5 600	51 100	45 500	5 600	51 100
1995/96	10 880	2 780	13 660	49 060	5 810	54 870	49 060	5 810	54 870
1996/97	11 150	2 890	14 040	52 890	6 040	58 930	52 890	6 040	58 930
1997/98	11 400	3 030	14 430	57 000	6 290	63 290	57 000	6 290	63 290
1998/99	11 670	3 160	14 830	61 390	6 570	67 960	61 390	6 570	67 960
1999/00	11 940	3 310	15 250	66 130	6 860	72 990	66 130	6 860	72 990
2000/01	12 210	3 460	15 670	71 220	7 160	78 380	71 220	7 160	78 380
2001/02	12 430	3 560	15 990	75 530	7 490	83 020	75 530	7 490	83 020
2002/03	12 640	3 660	16 300	80 120	7 810	87 930	80 120	7 810	87 930

NOTE:

[a] BU = Billing Unit = 10^8 Joules

10 September 1982

INTRODUCTION

This Introduction outlines the work undertaken to prepare the 1982 Projections of Gross Load Requirements - All Services of B. C. Hydro and where the various components of this work can be found in this and accompanying documents. This document comprises:

- a summary giving the results of the forecast (which was also issued under separate cover in mid September 1982);
- parts one and two which present forecasts of economic and demographic variables and energy prices on which the electric and gas forecasts are based;
- parts three through six which present the probable forecasts for each of the categories of electric sales;
- part seven which presents forecasts of the probable gross electric energy and peak requirements for the integrated and non-integrated systems for use in system planning;
- part eight which presents the low and high forecasts of electric energy requirements based on the low and high economic/demographic forecasts;
- part nine which presents the gas forecast;
- part ten which presents a brief narrative forecast of railway operations; and
- a series of appendices which provide supporting material, a review of the forecast load growth relative to forecasts of energy prices and income, and divisional breakdowns of the load.

Reports which were also prepared and issued under separate cover include:

(i) "A Forecast of Power Consumption by the B. C. Mining and Smelting Industry" by Wright Engineers Ltd. and H. N. Halvorson Consultants Ltd.;

(ii) "Projected Energy Requirements to the year 2000 - B. C. Forestry Industry" by Woodbridge Reed and Associates Ltd. and H. A. Simons International Ltd.;

(iii) "Projections of British Columbia Energy Demand, Residential, Commercial and Industrial Sectors, 1982 to 2001" by DataMetrics Ltd.;

(iv) "A Review of Studies of the Demand for Electricity" by NERA; and

(v) "Long Term Economic Outlook 1982-2001" by the Corporate Economist Department of B. C. Hydro dated July 1982.

The first two reports issued under separate cover, the metals mining and smelting report and the forestry report, are an integral part of B. C. Hydro's load forecast presentation. The analysis in these reports provides the rationale and principal basis for projecting the load to these two sectors.

The DataMetrics report and the NERA reports were undertaken as part of B. C. Hydro's effort to have a more complete analysis and understanding of the effects of price on the load forecast and to initiate work on a total energy forecast. While these studies do not form an integral part of this forecast, the results of this work are compared to the B. C. Hydro forecast in Appendix C.

The "Long Term Economic Outlook" provides the basis for the forecasts of Gross Domestic Product (GDP), population, households and energy prices presented in parts one and two of this document. Although the GDP forecast is used as an input in preparing the load forecast, both forecasts are influenced by the outlook for development in the province. Specifically, GDP and bulk electric sales forecasts are based to a large degree on the sectoral studies of forestry and metals mining and smelting, and assessments of the coal mining and petrochemical industries prepared by the B. C.Hydro/Monenco/ Confer team. Compatability between the GDP and population forecasts is obtained by linkage through the labour force, unemployment rate and productivity. Forecasts of energy prices in Part Two include B. C. Hydro's average electricity price, B. C. Hydro's average natural gas price and the blended price for crude oil in Vancouver.

The forecast of electric energy sales to residential customers presented in Part Three is developed using the forecast of household formation from Part One. Analyses of the amount of space heating, based on the relative consumer costs of natural gas and electricity, and projections of numbers of appliances per household and their electric energy requirements are the basis for estimating electricity use per household. The residential electric forecast includes the effects of conservation through better levels of insulation, use of more efficient appliances and less use of appliances and heating. It is estimated that these conservation effects for the residential forecast amount to 1 600 GW.h by 1992/93 of which 1 150 GW.h relates to future improvements and 450 GW.h relates to further application of existing insulation standards.

The forecast of General Electric Sales in Part Four includes institutional and commercial customers and small industrial customers. A large part of the institutional and commercial use is related to the electric energy requirement per unit of floor space in various types of office buildings, stores, schools and the like. This forecast is prepared by examining, to the extent possible using the limited data available, the likely growth in floor space relative to GDP and population forecasts. The trend of electric energy requirements per unit of floor space in new buildings is based on research by B. C. Hydro and others. It is possible for this portion of General Sales to estimate conservation effects as was done for the Residential forecast. If conservation were not included, this part of the load would be 525 GW.h or 10 percent higher in 1992/93. The forecasts for the small industries are based on the sectoral studies such as wood manufacturing, or are related to the forecast of GDP.

For both the electric Residential and the General sales forecasts as well as the other, smaller non-bulk categories, data are also gathered from the districts and the divisions on the short term outlook. This information is used to adjust the results of the long term methodology in the first two or three years of the forecast, and forms the basis for making the divisional forecasts.

The forecasts of electric Bulk Sales in Part Five are based on the sectoral assessments of the potential of the resource base in British Columbia for forestry, metals and coal mining and petrochemicals, and the markets for these products. In addition to using the results of these studies, B. C. Hydro has also been in contact with all its bulk customers to determine their intentions on future use of electricity. The procedure of using these two sets of information to arrive at the forecast is to first prepare the long term forecast using the resource base and projected markets, and then to adjust the first few years of that forecast, as warranted, to reflect the intentions of named customers.

The total of the electric residential, general and bulk sales represents some 98% of B. C. Hydro's total billed sales in 1981/82 and are forecast to represent 94% of its sales in 1992/93. The difference, which increases over the forecast period, is made up of street lighting, irrigation, inter-utility sales, sales to West Kootenay Power and Light (which has the largest growth among these loads), firm export to the United States and B. C. Hydro use. The basis for these forecasts are presented in Part Six of the report. No allowance is included in this forecast for sales of surplus power to either the United States or Alberta.

In order to use the electric load forecast for the purposes of system planning, the losses associated with these sales are estimated, and the requirements are expressed in terms of electric energy sent out and peak demand. This analysis and the estimate of the proportion of B. C. Hydro's load served by the integrated system rather than the small proportion served by isolated diesel is presented in Part Seven of this document. Part Eight presents low and high electric forecasts based on the low and high economic and demographic forecasts.

Part Nine presents the detailed low, probable and high projections of natural gas sales on the Lower Mainland and a probable projection of L.P. gas sales on Vancouver Island.

Part Ten is a brief summary of the projection of Railway Operations.

Appendices A and B of this document provide more detail on the forecasts of economic and demographic variables and energy prices. Appendix C, "Load Growth, Energy Prices and Income", reviews the forecast prepared in the body of this document, using a "top down/end use" approach, from the point of view of changes in energy prices and incomes which are the basis of an econometric approach. For both residential sales and a portion of general sales where an estimate can be made of what the load would be without price increases, approximate price elasticities are calculated.

Appendices D through H provide more detail on the electric energy forecast and divisional breakdown for each of the sales categories.

Appendix I gives the detailed assumptions underlying the natural gas projections. These include allowances for potential savings resulting from: re-insulating existing dwellings; new dwellings built to better standards and the effect of more efficient appliances, etc.

PART ONE

ECONOMICS AND DEMOGRAPHICS

Page

1.1 Introduction 36

1.2 British Columbia Economic Outlook 36

Table 1-1 Key Economic Indicators 38
Table 1-2 Summary Key B. C. Economic Indicators 40
Table 1-3 Share and Growth of B. C. GDP 41

1.3 Population and Households 39

Table 1-4 B. C. Population and Household Forecast 43
Figure 1-1 B. C. Headship - Historical and Forecast 45
Figure 1-2 Average People per Household 47
Figure 1-3 Marginal People per Household 47

PART ONE

ECONOMICS AND DEMOGRAPHICS

1.1 Introduction

This section presents forecasts of economic and demographic variables used to develop the load forecast within a framework which relies on a consistent series of assumptions. The Long-term Economic Outlook prepared by the Corporate Economist in July, 1982 is the source of these assumptions and forecasts. The Corporate Economist and Load Forecast Departments worked closely to develop a population model, including the necessary independent variables. The resulting model and its use are described below.

1.2 British Columbia Economic Outlook

1.2.1 General

The British Columbia economy will continue to grow faster in the long term than both the Canadian and U. S. economies, as it has in the past, but future long-term growth rates will be moderate compared to long-term historic trends. As a direct result of the current economic recession in the U. S. and Canada, British Columbia real economic activity in 1982 is expected to decline by 2.0%, which would make it the second worst year since statistics have been compiled.

The provincial economy is expected to follow the U. S. recovery, and by 1983, British Columbia exports should begin to lead the way to recovery, with the strongest growth occuring in the forestry, mining and construction sectors. In the medium term the anticipated decline in inflation and interest rates, coupled with rising real disposable incomes and improved export and domestic markets, should provide the necessary stimulus to investments.

The prospects for inflation, interest and exchange rates are for gradual improvement over the next few years. The general outlook is for inflation to drop slowly and to stabilize some 3% lower than the average 1982 level. By 1990 interest rates are likely to have fallen about 5% below current levels. The exchange rate outlook is for a gradually increasing trend, slow enough to increase investor confidence without losing export competitiveness.

A summary of key economic indicators for the United States and Canadian economies is shown on Table 1-1 and a detailed discussion of these and other economic variables in these economies is provided in the Economic Outlook prepared by B. C. Hydro's Corporate Economist.

1.2.2 British Columbia Economy

The economic outlook for British Columbia is based on the forecasts for the United States and Canadian economies noted in Table 1-1, and on assumptions regarding the prospects for certain key industrial sectors in the province. The assumptions are used to drive the B. C. Ministry of Industry and Small Business Development's short-term econometric model of the British Columbia economy. Long-term forecasts are made by applying single-equation regression techniques to the major variables, and the resulting forecasts are modified using judgement.

Table 1-1

KEY ECONOMIC INDICATORS

Economy	Economic Indicator	Average Annual Growth						
		61 to 81	82	83	84	85	86	87 to 2001
United States	Economic Growth Real GNP(% Change)	3.4	-0.8	3.5	4.0	3.5	2.5	2.9
	Inflation CPI(% Change)	5.4	6.8	6.5	7.0	7.5	7.0	6.5
	Interest Rate 3 Month Treasury Bills	6.0	15.0	13.5	12.5	12.5	12.5	9.8
	Housing Starts/Year (Millions)	1.56	1.04	1.40	1.70	1.90	1.80	1.63
Canada	Economic Growth Real GNP	4.4	-2.5	2.7	3.6	3.5	2.3	3.1
	Inflation CPI(% Change)	5.6	10.5	8.7	8.0	8.0	8.0	7.0
	Interest Rate 90 Day Finance Company Paper	6.8	17.5	16.5	14.5	12.5	12.0	11.0
	Foreign Exchange U.S. ¢/Can. $	93.9	79.0	80.0	81.0	82.0	83.0	87.0

Source: Long-term Economic Outlook, 1982-2001; Coporate Economist, B. C. Hydro; July 1982.

Table 1-2 shows key economic indicators for the British Columbia economy during the forecast period. The use of disaggregated economic modelling allows sectoral economic activity to be identified as shown in Table 1-3. The results of the sectoral economic forecast show clearly that the Forestry and Mining sectors are expected to lead the near term recovery and cause higher growth rates in the large service sectors of the economy. In the longer term, strong growth will be focussed on four sectors: mining, transportation, financial services and community, business and personal services. Government and fisheries sectors are expected to be the weakest sectors.

Using estimates of net-migration to British Columbia, a co-hort population model is used to ensure the forecast of economic growth is compatible with the labour force. The population of labour force age (15 years and older) is obtained from the model, and male and female participation rates are applied by age groups to derive the labour force estimate. Applying an unemployment rate allows the employed labour force to be calculated, and its growth rate is compared with GDP growth to determine the implied trend in labour productivity. Details of the variables used are shown in Appendix A. Generally, labour productivity trends upward over the forecast period which conforms with other published Canadian projections.

1.3 Population and Households

Population and the number of households are directly linked. Certain characteristics of household formation and preferences for types of dwelling are identified from historical data. These characteristics and preferences vary by age group, and it is necessary that the population forecast be disaggregated by

Table 1-2

SUMMARY

KEY BRITISH COLUMBIA ECONOMIC INDICATORS

Indicator	1961 to 1981	Actuals 1981	1982	1983	1984	1985	1986	1987-1991	1992-2001
Real Gross Domestic Product (%/y)	5.7	2.0	-2.0	3.2	4.4	4.0	3.6	3.5	3.7
GDP Deflator (%/y)	6.5	11.0	9.4	9.0	9.0	8.5	8.0	7.5	7.0
Consumer Price Index - Vancouver (%/y)	5.4	14.3	11.3	9.4	8.5	8.5	8.0	7.5	7.5
Housing Starts[a] (000's)	28/y	42	25	29	35	33	31	33	36
Labour Force (millions)	1961=0.58	1.34	1.35	1.38	1.43	1.49	1.52	1.72[b]	2.19[b]
%/y	4.3	-	0.7	2.2	3.6	4.2	2.0	2.5	2.4
Unemployment Rate %	7.5	6.7	10.1	9.8	8.8	8.6	8.6	7.6	7.4

[a] Excluding mobile homes.
[b] Value for the last year of the period shown.

Source: Long-term Economic Outlook, 1982-2001; Corporate Economist, B. C. Hydro; July, 1982.

Table 1-3

SHARE AND GROWTH OF BRITISH COLUMBIA GROSS DOMESTIC PRODUCT BY SECTOR[a] CENTRAL SOLUTION

	Share[b] of Economy %	Annual Real % Change					
		1982	1983	1984	1985	1986	1987-2001
Agriculture[c]	3.1	2.0	3.5	2.5	2.0	2.0	3.3
Construction	7.1	0.0	3.2	5.2	4.5	4.5	3.2
Financial Services	11.4	0.9	2.8	4.4	4.3	4.6	4.7
Forestry[c]	11.0	-14.8	20.2	32.0	17.0	-3.5	3.0
Manufacturing[c]	5.0	-4.8	3.1	5.7	4.7	4.5	2.5
Mining[c]	4.5	-11.6	8.3	7.7	3.8	3.6	4.5
Retail Trade	13.5	-5.2	2.8	4.0	3.9	4.0	3.6
Transportation	12.3	0.8	2.8	5.0	4.2	4.0	4.5
Utilities	3.5	3.2	2.5	2.5	3.7	4.2	3.8
Community, Business and Personal Services	21.7	-0.9	3.4	3.9	2.9	3.0	4.0
Fisheries[c]	0.5	-10.5	1.5	1.0	1.0	1.0	1.0
Government	6.4	0.3	0.6	1.0	1.0	1.4	1.2
Total Gross Domestic Product	100.0	-2.0	3.2	4.4	4.0	3.6	3.6

[a] All projections are based on estimates of the gross domestic product at factor cost (value added approach).

[b] The base year is 1981, total GDP at factor cost $14.6 billion in constant 1971 dollars.

[c] The percentage share of the economy combines primary activity and dependent or related manufacturing activity.

Source: Long-term Economic Outlook, 1982-2001; Corporate Economist, B. C. Hydro; July 1982.

age group. A co-hort[1] population projection is used to provide the number of people by age and sex for each year of the forecast period.

A mortality rate based on Statistics Canada data and projections is assigned to each age group and sex. Fertility rates based on current age-specific data and an estimate of fertility trends are used for females between the ages of 15 and 45.

Applying the mortality and fertility rates to the base population in a census year[2] results in a natural increase in population through births and deaths. Because the factors influencing the natural increase in population are relatively steady, population growth from this source is stable.

The level of net in-migration from international and interprovincial sources is volatile and more difficult to forecast. Because net in-migration is often substantial, it has larger impact on British Columbia's population growth than natural increases. Many factors are involved in the movement of people to British Columbia including lifestyle and employment opportunities. The latter can be associated with prospects for employment, but the former is more difficult to predict.

Using forecasts of key demographic variables discussed in Appendix A, increases in population from natural and net-migration sources are added annually to their respective co-hort age and sex group in the B. C. Hydro's co-hort population model to produce the population forecast shown on Table 1-4.

---

[1] Co-hort = projection by age and sex grouping.

[2] 1976 is the most recent date available in sufficient detail for this forecast.

Table 1-4
BRITISH COLUMBIA
POPULATION AND HOUSEHOLD FORECAST

Year	Population 000's	Occupied Households 000's
1981	2744	1005
1982	2785	1029
1983	2826	1058
1984	2873	1086
1985	2923	1116
1986	2979	1147
1987	3036	1180
1988	3095	1214
1989	3154	1247
1990	3215	1281
1991	3277	1313
1992	3339	1346
1993	3401	1380
1994	3463	1414
1995	3525	1450
1996	3587	1486
1997	3649	1521
1998	3712	1558
1999	3775	1594
2000	3838	1632
2001	3902	1670
Av. Ann. Growth: %		
10 Years: 1981 to 1991	1.8	2.7
10 Years: 1991 to 2001	1.8	2.4

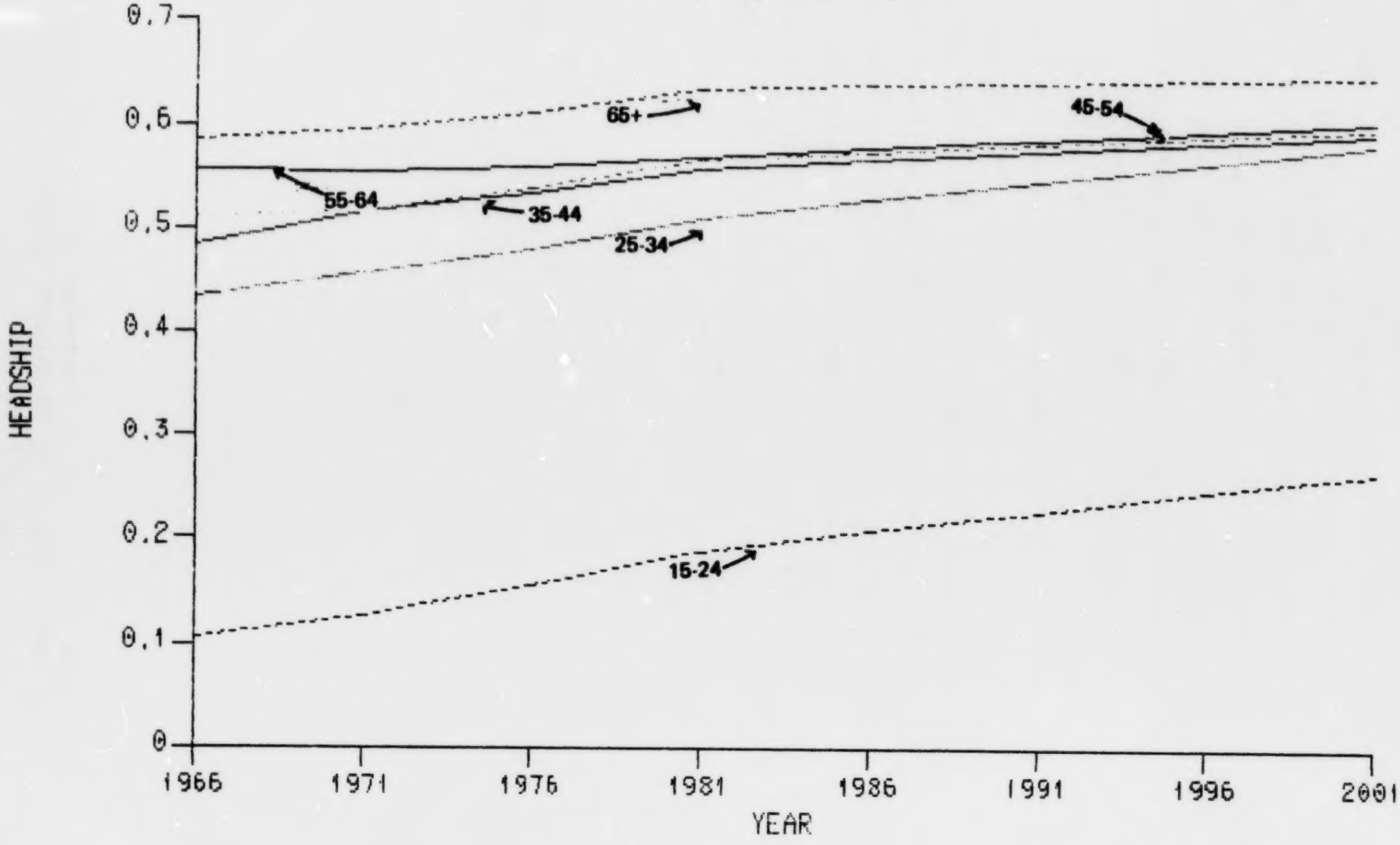
The co-hort population forecast is divided into several age groups which exhibit similar and historically identifiable patterns of headship[3]. Historical and forecast levels of headship are shown on Figure 1-1, and indicate headship will generally increase at a decreasing rate throughout the forecast period. Combining headship values with the population in each age group results in a forecast of the annual number of occupied households shown on Table 1-4. This estimate of occupied households is for all of B. C. and is adjusted to reflect B. C. Hydro residential customer accounts as described in the residential forecast of this study.

In addition to headship patterns, each age group has historically shown distinct preferences for the type of dwelling occupied. These patterns, both historical and forecast are shown in Appendix A. They are applied to the number of households determined through headship values to predict the type of dwelling occupied. Again, the mechanism for matching this provincial distribution with B. C. Hydro residential customer accounts by type of dwelling is described in the residential forecast.

---

[3] Headship is the ratio of the number of heads of households to the total population in any particular age group.

Figure 1-1
BRITISH COLUMBIA
HEADSHIP, HISTORICAL AND FORECAST
(By Age Group)



Using the methodology described above, the number of people per household, which is often used as a method of estimating households from a population forecast, is derived and not predicted. That is, using headship for each age group eliminates the need to predict the average people per household.

An analysis of the average people per household and marginal people per household[4] for historical and forecast periods is shown on Figures 1-2 and 1-3. Average people per household values have declined significantly since the 1950's and are expected to continue to decline because future marginal people per household values remain at levels attained in the 1970's.

To summarize, the co-hort population projection provides age specific population details which are combined with forecasts of established patterns of headship to predict households. These, in turn, are combined with estimated patterns of housing preferences to predict types of dwellings. Resulting future average and marginal people per household values are consistent with historical trends.

---

[4] Marginal people per household is defined as the change in population divided by the change in households during any given time.

Figure 1-2
AVERAGE PEOPLE PER HOUSEHOLD
(Total Population divided by Total Households)

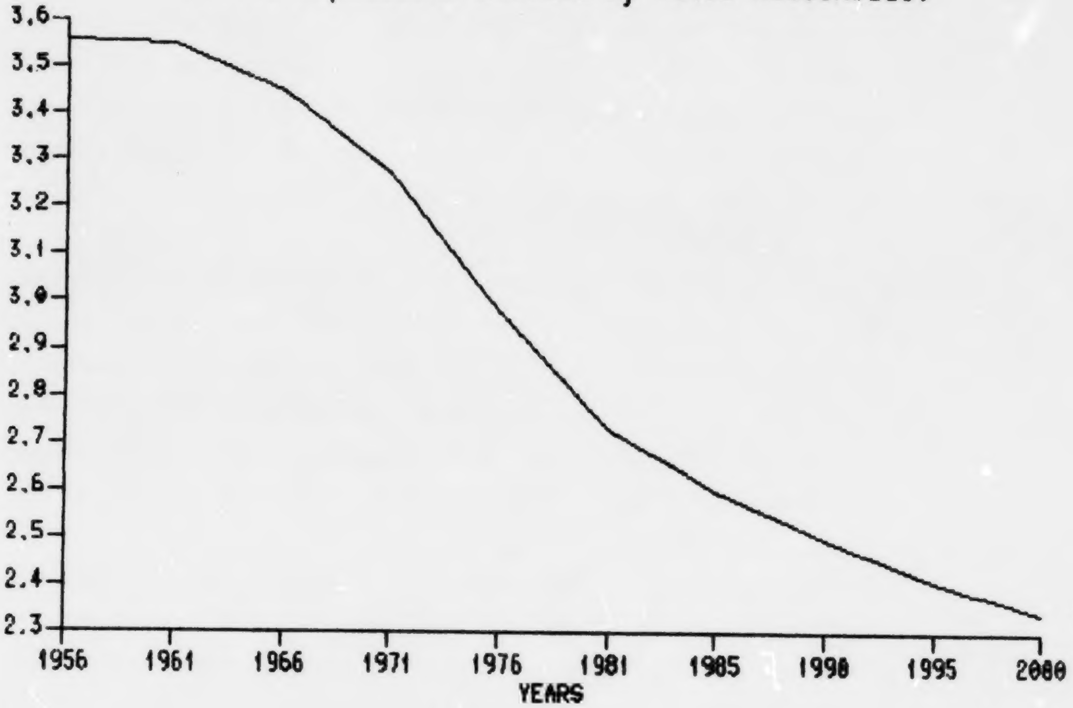
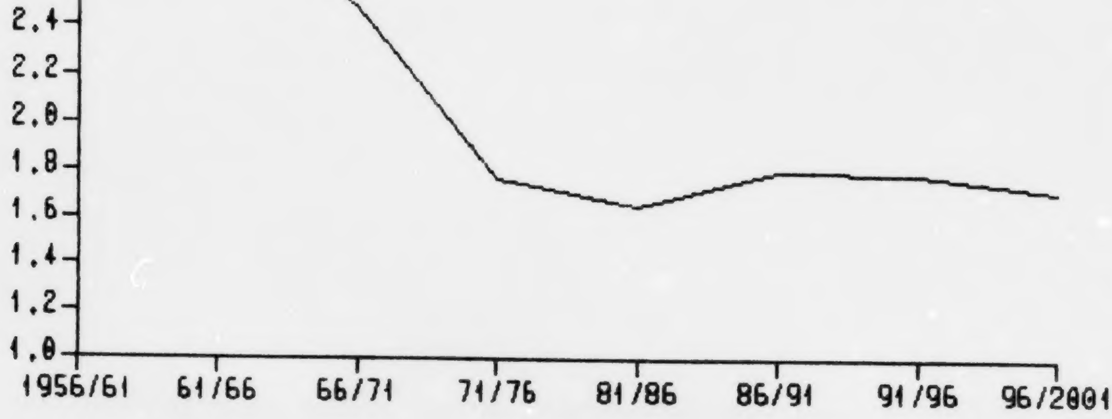


Figure 1-3
MARGINAL PEOPLE PER HOUSEHOLD
(Change in Population divided by Change in Households)



PART TWO

ENERGY PRICES

Page

2.1 Introduction 49

2.2 Electricity Prices 49

Figure 2-1 Historic and Forecast Electricity Prices 51
Table 2-1 Historic and Forecast Electricity Prices 52

2.3 Crude Oil and Natural Gas Prices 53

Table 2-2 Historic and Forecast Crude Oil and N.G. Prices 56

2.4 Use of Price Forecasts 58

PART TWO

ENERGY PRICES

2.1 Introduction

This part of the report presents forecasts of future electricity, crude oil and natural gas prices. The electricity price is developed in terms of average revenue requirement per kWh of sales; the oil price in terms of the blended price of crude oil at Vancouver; and the natural gas price in terms of B. C. Hydro's wholesale purchase cost and its average selling price. All the price projections are expressed in terms of 1981 dollars. Details of the assumptions and approaches used to develop the prices are presented in Appendix B.

2.2 Electricity Prices

B. C. Hydro's future average electricity prices will be a function of the costs of the resources being developed to meet the expanding load, the load growth determining the rate at which these resources are developed, the cost of financing these developments and the interest coverage achieved over the forecast period.

The forecast of electricity prices used in this report has been developed using three cases:

(i) the price forecasts presented in the 10 year Corporate Plan of May 1982 which was based on the Interim Load Forecast;

(ii) a 20 year financial analysis, again based on the Interim Load Forecast, using interest rates, escalation rates and exchange rates developed by the Corporate Economist Department in July 1982;

(iii) a 20 year financial analysis based on load growth 0.5%/year below the growth in the Interim Forecast, i.e. 4.3% to 1991 and 2.7% from 1991 to 2001, and the financial parameters in (ii).

The details of these analyses and their results are presented in Appendix B. The load forecast developed in the subsequent chapters of this report is slightly below the Interim Forecast but equals the forecast used in the third analysis.

Figure 2-1 and Table 2-1 show historical movements in B. C. Hydro's average electricity prices, and the future trend based on the current analysis. These exhibits indicate electricity prices, expressed in 1981 dollars, are expected to increase significantly from 1981/82 to 1984/85. The increase from the average 1981/82 level is due in part to the imposition of water taxes and rate increases that occurred in the last quarter of fiscal 1981/82. The average rate as of 1 April 1982 was 3.73¢/kW.h in nominal dollars, or 3.41¢/kW.h in 1981 dollars. The remaining increases to fiscal 1984/85 are the result of increasing the interest coverage to 1.3 and the commissioning of Revelstoke Generating Station in 1984.

After Revelstoke comes on stream, electricity prices in 1981 dollars, decline up to 1988/89 and then remain constant over most of the forecast period at 3.80¢/kW.h which is 11% above average rate prevailing on 1 April 1982.

In the analysis in subsequent chapters it is assumed that electricity prices for the various rate categories increase at the same rate as unit revenue requirements.

Figure 2-1

HISTORIC AND FORECAST ELECTRICITY PRICES

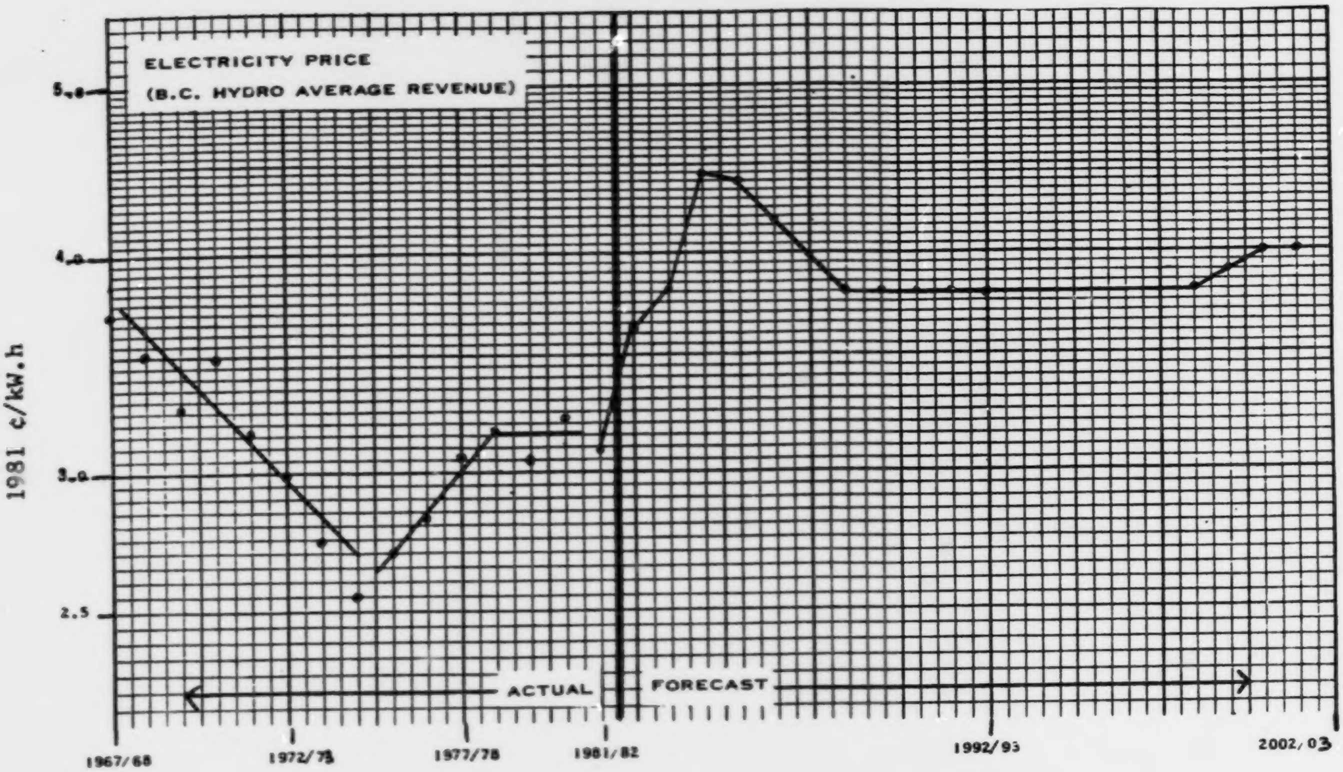


Table 2-1

HISTORIC AND FORECAST ELECTRICITY PRICES

Year	Electricity Prices (1981¢/kW.h)
1967/68	3.70
1968/69	3.51
1969/70	3.27
1970/71	3.49
1971/72	3.26
1972/73	2.99
1973/74	2.74
1974/75	2.55
1975/76	2.70
1976/77	2.83
1977/78	3.07
1978/79	3.17
1979/80	3.05
1980/81	3.22
1981/82	3.08
1982/83 (April to Date)	3.41
1982/83	3.64
1983/84	3.82
1984/85	4.44
1985/86	4.40
1986/87	4.18
1987/88	3.98
1988/89	3.80
1989/90	3.80
1990/91	3.80
1991/92	3.80
1992/93	3.80
1993/94	3.80
1994/95	3.80
1995/96	3.80
1996/97	3.80
1997/98	3.80
1998/99	3.80
1999/00	3.90
2000/01	4.00
2001/02	4.00

2.3 Crude Oil and Natural Gas Prices

This section incorporates world crude oil price trends, domestic oil production and federal and provincial pricing and taxation policy to forecast British Columbia crude oil and B. C. Hydro natural gas prices.

2.3.1 World Crude Oil Prices

The current excess supply of crude oil on world markets has resulted in a significant decline in the real price of imported oil in Canada. In 1982, the real international price in Montreal is expected to decrease about 10% from the 1981 price. Although the 1982 international crude oil price may decline slightly in nominal U. S. dollar terms, the international price at Montreal will increase slightly in 1982 due to a low Canadian/U. S. exchange rate relative to 1981.

The forecast of world crude oil prices assumes no major changes to the internal cohesion of the Organization of Petroleum Exporting Countries (OPEC). The international price is projected to grow at the rate of U. S. inflation in 1983, followed by real price increases of 1% per year until 1986. In the longer term, after 1986, oil prices are expected to grow at 2% per year above U. S. inflation.

Because U. S. inflation rates are forecast to be less than Canadian rates, and because the Canadian dollar is expected to gradually improve relative to the U. S. dollar, the world crude oil price in Montreal in 1981 Canadian dollars will increase at a slower pace than the world crude oil price in U. S. dollars. From 1981 to 1986, the international price in Canadian dollars at Montreal is anticipated to rise at an average annual rate of only 5.3% in nominal terms. Over the 1986 to 2001 period, the price should increase at about 8%/year.

2.3.2 Vancouver Crude Oil Prices

The blended Vancouver crude oil price is equal to the blended wellhead price in Alberta plus gathering charges and a transportation tariff from Edmonton to Vancouver. Gathering charges and transport costs are expected to grow at 6% and 4%/year, respectively, over the forecast period.

The blended wellhead price is calculated by combining the volumes and prices of various classifications of crude oil produced in Canada or imported. Specifically, it is composed of the agreed wellhead price for oil discovered prior to 1974, a Canadian ownership charge of $0.77 and $1.15 per barrel applied in 1981 and 1982 respectively, and the Petroleum Compensation Charge (PCC). The PCC is calculated to cover both the higher cost of imported oil and the higher price established for some Canadian oil production.

Most of the change in the Vancouver crude oil price in the short term is due to rapid increases in the price of domestic conventional crude oil. Under the terms of the NEP Update 1982, oil discovered between 1974 and 1980 will receive 75% of the international price in Montreal less transportation costs from the wellhead. By 1984, the price paid for oil discovered in 1973 or earlier should reach and remain at the same price level as oil discovered between 1974 and 1980.

All "new" oil produced in Canada in 1981 or later will receive the New Oil Reference Price (NORP), equal to the international price adjusted for quality, less transportation costs from the wellhead to Montreal. The blended Vancouver price of crude oil approaches the international level by the end of the forecast period as established, low-price domestic crude oil production declines, and the proportion of crude oil demand met by high-cost oil from Canada or abroad increases.

Table 2-2 shows that the real blended Vancouver crude oil price incurs a substantial increase in 1982 and 1983. From 1984 to 2000, the average real increase is about 1.4% per year, and largely results from continued real increases in the international crude oil price. Details of the crude oil price forecast are in Appendix B.

Table 2-2

HISTORIC AND FORECAST CRUDE OIL AND NATURAL GAS PRICES

Year	Crude Oil Prices[a] (1981$/m³)	Crude Oil Prices[a] (1981$/b)	B. C. Hydro Average Natural Gas Selling Price (1981$/GJ)
1967/68	54.45	8.66	2.51
1968/69	52.26	8.31	2.35
1969/70	49.70	7.90	2.18
1970/71	48.17	7.66	2.16
1971/72	49.16	7.82	2.04
1972/73	46.59	7.41	1.89
1973/74	50.40	8.01	1.71
1974/75	71.92	11.43	1.88
1975/76	78.21	12.42	1.83
1976/77	83.86	13.33	1.95
1977/78	91.80	14.60	2.26
1978/79	100.33	15.95	2.51
1979/80	98.39	15.64	2.30
1980/81	115.26	18.33	2.37
1981/82	177.69	28.25	3.25
1982/83	196.05	31.17	3.70
1983/84	208.80	33.20	3.54
1984/85	213.31	33.91	3.35
1985/86	216.21	34.37	3.34
1986/87	217.60	34.59	3.52
1987/88	220.23	35.01	3.68
1988/89	225.38	35.83	3.64
1989/90	227.53	36.17	3.59
1990/91	229.59	36.50	3.55
1991/92	231.15	36.75	3.54
1992/93	232.99	37.04	3.81
1993/94	237.71	37.79	3.87
1994/95	241.47	38.40	3.90
1995/96	246.18	39.14	3.96
1996/97	250.03	39.75	4.00
1997/98	254.13	40.40	4.04
1998/99	257.45	40.93	4.06
1999/00	261.15	41.52	4.10
2000/01	264.56	42.06	4.12
2001/02	N/A	N/A	4.17

[a] Historic crude oil prices to 1980/81 are for Canada. Forecast prices are the Vancouver blended crude oil price. 1 m³ = 6.29 barrels.

2.3.3 Average B. C. Hydro Natural Gas Prices

The average price of natural gas charged by B. C. Hydro equals Hydro's wholesale price plus the Federal Natural Gas and Gas Liquids Tax (NGGLT), the Canadian Ownership Charge and Hydro's cost of service. The wholesale price is composed of a domestic field price component and Westcoast Transmission Co. Ltd.'s tariff. The domestic field price is calculated according to the B. C. Utilities Commission's proposed formula, which provides increasing real netbacks to the producer as a stimulus for exploration and development. Based on discussions with Westcoast Transmission, their unit cost of service is increased at the Canadian inflation rate to 2001.

Until 1986, the NGGLT is the difference between 65% of heat parity with the Toronto blended crude oil price, and the sum of the Alberta border price and transportation costs to Toronto. From 1987 to 1991, it is assumed that the NGGLT is based on 70% of heat parity with crude oil in Toronto, and from 1992 to 2001, 75% of parity is used. The parity ratio is increased above 65% since it is expected that by 1986 the Federal government's "off-oil" incentives will have caused sufficient substitution toward natural gas. As a result, the parity ratio can be increased to approach historical levels, and increase Federal government revenue. B. C. Hydro's real cost of service is estimated using Hydro's corporate model.

As shown on Table 2-2, the average real B. C. Hydro selling price of natural gas rises substantially in 1982 before price increases stablize in 1983. The large increase in 1982 occurs primarily because the Federal Government froze the NGGLT for 1982 at $0.63/GJ, an 80% increase over the 1981 level. Moreover, Hydro's cost of service has also increased substantially over 1981.

Lower real natural gas prices are expected from 1983 to 1986 due to the NGGLT declining to zero in 1985 and 1986 when Canadian natural gas prices achieve 65% heat parity with oil in Toronto, and due to the Canadian Ownership Charge terminating in 1982. After 1986 the real B. C. Hydro average natural gas selling price is relatively stable to 1991 and then increases at 1.8% per year to 2001 due to real crude oil and transportation cost increases. Details of the B. C. Hydro average natural gas selling prices forecast are in Appendix B.

2.4 Use of Price Forecasts

The average prices presented in this part for electricity, natural gas and crude oil are not the actual prices paid by consumer. For example the electricity price in Table 2-1 is the average of the prices paid by the Residential, General and Bulk customers and not the price paid by any one of these categories.

The average price projections are used to forecast the prevailing rates being paid by various customer categories.

In the case of calculating the relative costs of electricity and gas space heating for residential customers, the prevailing residential rates are increased in proportion to the increases in the average selling prices to arrive at the relative cost of these to type of heating over the forecast period. In this exercise, the end step of the rate is used to determine the cost of electric space heating.

PART THREE

ELECTRIC-PROBABLE RESIDENTIAL SALES

Page

3.1 Introduction 60

3.2 Household Formation and B. C. Hydro Accounts 60

3.3 Electric Space Heating 61

Table 3-1 Relative Energy Costs for Residential Space Heating 63

3.4 Average Use Trends 62

Table 3-2 Residential Electric Load Profile 65
Table 3-3 Residential Electric Appliance Forecast 66

3.5 Residential Summary 68

Table 3-4 Residential Electric Sales Projections 69
TABLE 3-5 Residential Accounts Detail - Historic and Probable Projections - Total All Divisions 70

PART THREE
ELECTRIC-PROBABLE RESIDENTIAL SALES

3.1 Introduction

In the fiscal year ending March 1982, B. C. Hydro's residential sales amounted to 8 640 GW.h and comprised 30.5% of total sales. B. C. Hydro served an average of some 930 000 residential customers, of which 14.2% had electric space heating. The average annual use for non-electric heating customers was 8 129 kW.h in 1981/82, and for those with electric heating the annual use was 16 320 kW.h per customer.

The three principal factors which affect growth in residential sales are:

- the rate and type of household formation;
- the proportion of customers that install electric heat; and
- the changes in usage levels resulting from income, price and conservation effects.

Less significant factors are changes in alternative heating sources and technological development of new appliances.

3.2 Household Formation and B. C. Hydro Accounts

The most significant variable affecting residential sales is household formation. As projected in Part One, households in B. C. will grow at 2.7% per year over the 1981 to 1991 period and at 2.4% per year over the 1991 to 2001 period. B. C. Hydro accounts will grow at the same rate since the relationship between provincial households and B. C. Hydro accounts is expected to remain constant. Hydro's 1981/82 fiscal year average number of residential accounts of 930 000 is 92.5% of the 1981 provincial census households number of 1 005 000. This factor is the combination of three elements:

- census data is based on the 1 June census date whereas the mid point in the B. C. Hydro fiscal year is 1 October;
- B. C. Hydro provides electric service to approximately 90% of all provincial residential accounts, the balance being mainly in the WKP&L service area; and
- B. C. Hydro accounts include approximately 4% of seasonal and miscellaneous dwellings which are not included in census household definitions.

The changing housing mix derived in Part One and applied to B. C. Hydro accounts shows the single/double share of total households moving from 65% to 59% by 1992/93, row housing from 3% to 6%, apartments from 23% to 27%, mobile housing from 5% to 4% and seasonal dwellings remaining constant at 4%.

3.3 Electric Space Heating

The use of electricity for space heating is an important determinant of residential load growth. Prior to 1974 and the rapid increase in oil prices, electric heating accounts comprised about 5% of total residential accounts. Since then the use of home heating oil in new houses has declined and is being replaced to a certain extent by electricity. Between 1975 and 1981 the number of electric heating accounts increased almost threefold from 46 300 to 132 300 accounts. The percentage of new households currently installing electric heat is in excess of 50%[1].

---

[1] This capture rate is on the basis of net account additions, i.e. new account additions less demolitions.

The major factors determining the selection of home heating fuel for new construction are the relative costs of installation and operation. Although builders prefer to install electric space heating in order to save capital costs in the range of $500 to $1500 per dwelling unit, their choice is limited by the acceptance of the purchaser/renter who prefers to minimize the annual operating cost. The fuel price forecasts prepared in Part Two of this report, allow a projection of relative heating costs. Table 3-1 illustrates the approximate historic relative heating cost ratios for a single detached dwelling in the Lower Mainland, and the total B. C. Hydro capture rates for single detached, row and apartment dwellings. Historical experience indicates that builders and purchasers have demonstrated distinct although fluctuating preferences for space heating among different types of dwellings. Based on the data in Table 3-1 it is assumed that the 10 year average capture rate for areas where gas is available will be 20% for single/duplex houses, 60% for row housing, and 50% for apartments.

For Vancouver Island, it is assumed that gas will be available in 1986/87 and that capture rates for electric heating will remain close to 100% until then. Thereafter, it is assumed that approximately 70% of the electric service area will receive gas and will move towards the provincial average capture rate while the remainder will continue with electric capture rates near 100%. The resulting overall 11 year average capture rate for B. C. Hydro including Vancouver Island, is 43%.

3.4 Average Use Trends

The trends in use per household are a function of the number of appliances that are purchased, the efficiency of those appliances and their level of use. A computational model has been developed to facilitate the analysis of these factors.

Table 3-1

RELATIVE ENERGY COSTS FOR RESIDENTIAL SPACE HEATING

Fiscal Year	Ratio of Annual Cost of Gas Space Heating to Electric[a]	Capture Rate for Electric Space Heating[b]		
		Single	Row	Apt
Historic				
1977/78	.63	.26	.75	.49
78/79	.50	.22	.71	.67
79/80	.48	.12	.49	.47
80/81	.64	.12	.69	.44
81/82	.72	.22	.59	.60
Forecast				
1982/83	.60 to .77[c]			
83/84	.55 to .70			
84/85	.44 to .57			
85/86	.45 to .57			
86/87	.50 to .64	.20	.60	.50
87/88	.54 to .70			
88/89	.56 to .72			
89/90	.56 to .71			
90/91	.55 to .71			
91/92	.55 to .70			
92/93	.59 to .76			

[a] Relative costs are for a single detached 1200 sq. ft. house in the Lower Mainland. For the historic period the costs for electric heating are based on insulation Class B which was typical pre 1976 electric insulation, and gas costs are based on insulation Class A which were typical gas and oil insulation levels. For the forecast period both are based on Class C - B. C. Hydro's recommended insulation level for all types of fuel. Costs are based on B. C. Hydro's incremental charge for electricity and total charge for gas.

[b] Historic Capture Rates for B. C. Hydro electric service area excluding Vancouver Island.

[c] The low end of the range is based on the assumption that gas furnaces with an 80% efficiency will be installed whereas the high end is based on the assumption that the present practice of installing 60% efficiency furnaces will continue. Changes in taxes on electricity, gas, or variation in rate structures would affect this range of cost ratios and the resulting capture rates.

Specifically, the residential model starts with a 1981/82 base year disaggregated load profile based on B. C. Hydro's actual record of accounts and usage levels combined with information from the latest Residential Survey and from the Energy Conservation Division. For example, the Residential Survey suggests that 65% of all homes presently have an electric clothes dryer and the Household Appliance Average Consumption guide produced by the Energy Conservation Division suggests that the typical annual use for an electric dryer is 900 kW.h. This data is combined with that of all other major appliances, constrained only by the resulting summation which is the known actual consumption level. The base load profile is presented in Table 3-2.

From this base, specific projections are forecast for the individual components. For example, the saturation of the electric clothes dryer is expected to increase to 75% over the forecast period while consumption is expected to be reduced from 900 kW.h to 750 kW.h. The saturation and consumption details of the projections incorporated in the forecast are found in Table 3-3.

Increasing saturation levels for appliances are judgementally determined and are considered to be modest relative to historic changes. For example, over the last ten years average use per residential non-heating account has grown 22.5% despite recognition and implementation of some conservation. Over the next ten years the growth allowance, before considering conservation, is only 10%. Existing appliances are reaching full saturation and new appliances are being introduced at a slower rate.

Reductions in use levels for appliances, lighting, and water heaters will be significant over the forecast period and are the result of three prominent factors:

- rising energy prices throughout North America will cause manufacturers to continue to produce more efficient appliances;

Table 3-2

RESIDENTIAL ELECTRIC LOAD PROFILE
1981/82

	Average Use (kW.h)	Saturation (%)	Use Per Account (kW.h)	Accounts (000's)	Sales (GW.h)
Appliances					
1. Range	1 200	90	1 080		
2. Microwave	240	10	24		
3. Refrigerator	1 440	100	1 440		
4. Freezer	1 440	50	720		
5. Washer	60	75	45		
6. Dryer	900	65	585		
7. Dishwasher	360	40	144		
8. Blockheater	200	15	30		
9. Other	1 045	100	1 045		
Sub-total			5 113	929.8	4 754
Lighting	1 000	100	1 000	929.8	930
Water Heating	4 200	48	2 016	929.8	1 874
Total use per Non Electric Heating account			8 129	929.8	7 558
Space Heating			8 191	132.1	1 082
Total use per Electric Heating account			16 320		
Total Residential			9 292	929.8	8 640

Table 3-3

RESIDENTIAL ELECTRIC APPLIANCE FORECAST

	Average	Average Annual Consumption		Average Market Saturation	
	Life Span	1981/82	2002/03	1981/82	2002/03
APPLIANCE	(Years)	(kWh)	(kWh)	%	%
1. RANGE	12	1 200	900	90	95
2. MICROWAVE	10	240	170	10	60
3. FRIDGE	15	1 440	1 080	100	110
4. FREEZER	20	1 440	900	50	60
5. WASHER	11	60	50	75	85
6. DRYER	14	900	750	65	75
7. DISHWASHER	11	360	200	40	60
8. BLOCKHEATER	20	200	150	15	15
9. OTHER[a]	10	1 045	2 900	100	100
LIGHTING	10	1 000	600	100	100
WATER HEATER	8	4 200	2 000	48	48

[a] 'Other' includes televisions, small appliances, waterbeds, hot tubs, etc.

- B. C. consumers will, in response to higher electricity prices, select more efficient appliances or find less energy intensive alternatives;

- higher electricity prices will encourage consumers to curtail consumption by using certain appliances less frequently.

Overall, appliance efficiencies will improve approximately 30% over the next twenty years while lighting will improve 40% and water heating 50% through improved insulation and use patterns. The projections are supported by detailed studies completed by the Energy Conservation Division. The effect of these changes on the forecast is that energy sales would be 1 100 GW.h higher than projected in 1992/93 and 2 900 GW.h higher in 2002/03 without the effects of these improvements.

Average use for electric space heating will be reduced in the years ahead as a result of several factors including electricity prices already in effect today, future energy prices and dwelling size. Increasing electricity prices relate directly to annual heating costs and have resulted in substantial improvements in home insulation levels and other improved weatherization techniques. Homes now being constructed with electric space heating are generally insulated to levels of at least R12 in the walls and R28 in the ceilings. In the future, homes may have standard insulation levels of R20 in the walls and R40 in the ceilings. As the proportion of new homes increases, the average use for all electrically heated units will drop. Also homes in the future may be smaller with more row housing and apartments, and the average area of a home being reduced contributing to lower average heating use levels. A detailed impact analysis report has been completed by the Energy Conservation Division. The estimated total reduction in annual average use for electric heating is 35%. This results in conservation savings of 500 GW.h by 1992/93 of which 50 GW.h can be attributed to further improvements over today's standards. By

2002/03 the savings will be 1 200 GW.h of which 150 GW.h relate to future improvements.

3.5 Residential Summary

Residential sales are expected to rise from 8 640 GW.h in 1981/82 to 11 735 GW.h by 1992/93. This represents an average annual growth rate of 2.8%, significantly below the 10 year historic rate of 6.8%. Average annual accounts will increase from 930 000 in 1981/82 to 1 250 000 in 1992/93, an annual growth rate of 2.7%. The effect of the projected capture rates is that electric accounts will increase as a proportion of total accounts from 14.2% in 1981/82 to 21.6% by 1992/93 and 25.9% by 2002/03. Year by year account and use level details are presented in Table 3-4. Table 3-5 lists further detail by non-heating and heating categories and shows 11 years history for the Total B. C. Hydro.

Similar data by Divisions is included in Appendix D.

Table 3-4

RESIDENTIAL ELECTRIC SALES PROJECTIONS
(Billed basis, no adjustment for accrual)

Year	Residential Accounts (000)[a]	Percent Electric Heating (%)[b]	Annual Average Use Per Account:[c]			Total of Sales (GW.h)[d]
			Non Electric Heating (kW.h)	Electric Heating (kW.h)	All Accounts (kW.h)	
1980/81 (Actual)	900.0	13.1	7 888	15 907	8 935	8 042
1981/82 (Actual)	929.8	14.2	8 129	16 320	9 292	8 640
Av. Ann. Growth: %						
10 Yrs: 71/72-81/82	4.3		2.0	-1.9	2.5	6.8
1982/83	953.9	15.2	8 160	16 125	9 370	8 940
1983/84	976.8	16.1	8 185	15 910	9 425	9 208
1984/85	1 002.9	17.0	8 190	15 705	9 470	9 498
1985/86	1 031.0	17.9	8 195	15 520	9 510	9 805
1986/87	1 060.4	18.7	8 165	15 305	9 495	10 071
1987/88	1 090.8	19.3	8 135	15 095	9 475	10 337
1988/89	1 121.6	19.8	8 105	14 910	9 455	10 602
1989/90	1 152.7	20.3	8 090	14 760	9 445	10 886
1990/91	1 184.0	20.7	8 065	14 620	9 425	11 160
1991/92	1 216.7	21.2	8 045	14 475	9 405	11 444
1992/93	1 249.7	21.6	8 025	14 340	9 390	11 735
2002/03	1 592.5	25.9	8 210	13 440	9 565	15 231
Av. Ann. Growth: %						
11 Yrs: 81/82-92/93	2.7	-	-0.1	-1.2	0.0	2.8
10 Yrs: 92/93-02/03	2.5	-	0.2	-0.7	0.2	2.6

[a] Developed from the population forecast in TABLE E 3 by applying headship rates and factors to distribute households by type of dwelling. In 1981/82, the B. C. Hydro household dwelling mix was 65% houses, 3% row houses, 23% apartments, 5% mobile, and 4% seasonal. In 1992/93, the mix is forecast to be 59%, 6%, 27%, 4% and 4%, respectively.

[b] The relative costs of gas and electric space heating have been calculated based on rates presently paid by residential customers and increases in their rates in proportion to those shown in TABLE E 4. Although electricity rates increase more than gas in the first ten years, the relative heating costs are similar to the past eight years. As a result capture rates similar to historic values are assumed. These average 20% for single houses, 60% for row and 50% for apartments over the 1981/82 to 1992/93 period. The overall average, with gas available on Vancouver Island in 1986/87 and a net 100% electric capture rate prior to that date, is 43%.

[c] The electricity use for non-electrically heated households is a function of the projections of the numbers of appliances per household and the use per appliance. During the forecast period households are projected to have greater numbers of appliances but because they are more efficient the use per household does not increase. The decline in use for electrically heated households results from a greater proportion of row houses and apartments, and higher insulation levels in new dwellings.

[d] The total sales projected include the anticipated effects of conservation. Without the conservation included in this forecast the 1992/93 residential sales would be 1 600 GW.h higher, and the 2002/03 sales 4 100 GW.h higher.

10 September 1982

TABLE 3-5
ALL DIVISIONS

B. C. HYDRO
RESIDENTIAL ACCOUNTS DETAIL - HISTORIC AND PROBABLE PROJECTIONS
TOTAL - ALL DIVISIONS

FISCAL YEARS	NON-HEATING					HEATING					TOTAL					Average Heating Accts. % of Total
	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	
HISTORIC																
1971/72	582 842	27 069	6 643	241	3 872	30 051	3 955	19 733	1 109	593	612 893	31 024	7 285	335	4 465	4.9
1972/73	615 072	32 230	6 658	15	4 095	33 944	3 893	18 972	-761	644	649 016	36 123	7 302	17	4 739	5.2
1973/74	647 539	32 467	6 940	282	4 494	36 228	2 284	18 825	-147	682	683 767	34 751	7 570	268	5 176	5.3
1974/75	677 509	29 970	7 260	320	4 919	39 976	3 748	19 161	336	766	717 485	33 718	7 924	354	5 685	5.6
1975/76	700 510	23 001	7 599	339	5 323	46 305	6 329	20 192	1 031	935	746 815	29 330	8 380	456	6 258	6.2
1976/77	724 473	23 963	7 588	-11	5 497	58 205	11 900	19 380	-812	1 128	782 678	35 863	8 465	85	6 625	7.4
1977/78	747 462	22 989	7 659	71	5 725	67 801	9 596	19 556	176	1 326	815 263	32 585	8 649	184	7 051	8.3
1978/79	761 860	14 398	7 710	51	5 874	85 534	17 733	18 922	-634	1 618	847 394	32 131	8 841	192	7 492	10.1
1979/80	767 929	6 069	7 802	92	5 992	103 092	17 558	16 835	-2 087	1 735	871 021	23 627	8 871	30	7 727	11.8
1980/81	782 371	14 442	7 888	86	6 171	117 640	14 548	15 907	-928	1 871	900 011	28 990	8 935	64	8 042	13.1
1981/82	797 660	15 289	8 129	241	6 484	132 110	14 470	16 320	413	2 156	929 770	29 759	9 292	357	8 640	14.2
Av. Annual Growth-% 10 Years: 71/72-81/82	3.2		2.0		5.3	16.0		-		13.8	4.3		2.5		6.8	
PROJECTIONS																
1982/83	808 850	11 190	8 160	31	6 601	145 070	12 960	16 125	-195	2 339	953 920	24 150	9 370	78	8 940	15.2
1983/84	819 550	10 700	8 185	25	6 706	157 250	12 180	15 910	-215	2 502	976 800	22 880	9 425	55	9 208	16.1
1984/85	832 200	12 650	8 190	5	6 817	170 700	13 450	15 705	-205	2 681	1 002 900	26 100	9 470	45	9 498	17.0
1985/86	846 000	13 800	8 195	5	6 934	185 000	14 300	15 520	-185	2 871	1 031 000	28 100	9 510	40	9 805	17.9
1986/87	862 500	16 500	8 165	-30	7 042	197 900	12 900	15 305	-215	3 029	1 060 400	29 400	9 495	-15	10 071	18.7
1987/88	880 800	18 300	8 135	-30	7 167	210 000	12 100	15 095	-210	3 170	1 090 800	30 400	9 475	-20	10 337	19.3
1988/89	899 700	18 900	8 105	-30	7 294	221 900	11 900	14 910	-185	3 308	1 121 600	30 800	9 455	-20	10 602	19.8
1989/90	918 900	19 200	8 090	-15	7 435	233 800	11 900	14 760	-150	3 451	1 152 700	31 100	9 445	-10	10 886	20.3
1990/91	938 600	19 700	8 065	-25	7 572	245 400	11 600	14 620	-140	3 588	1 184 000	31 300	9 425	-20	11 160	20.7
1991/92	959 100	20 500	8 045	-20	7 715	257 600	12 200	14 475	-145	3 729	1 216 700	32 700	9 405	-20	11 444	21.2
1992/93	979 700	20 600	8 025	-20	7 863	270 000	12 400	14 340	-135	3 872	1 249 700	33 000	9 390	-15	11 735	21.6
Av. Annual Growth-% 11 Years: 81/82-92/93	1.9		-		1.8	6.7		-		5.5	2.7		0.1		2.8	

10 September 1982

MST170

PART FOUR

ELECTRIC-PROBABLE GENERAL SALES

Page

4.1 Introduction 72

Table 4-1 Disaggregation of General Sales 73

4.2 Small Industrial 72

Table 4-2 General Industrial Electric Energy Requirements 75

4.3 Commercial and Institutional 76

Table 4-3 General Commercial Electric Energy Requirements 80

4.4 Total General Sales and Comparisons with GDP, Population and Residential Forecasts 78

Table 4-4 Summary of General Electric Energy Requirements 81

PART FOUR

ELECTRIC-PROBABLE GENERAL SALES

4.1 Introduction

The General Sales category comprises a mixture of sales to small industries and commercial establishments. The sales in this category for the year ending March 1982 were 9 706 GW.h.

Over the past year, analysis has continued to break down the total load in this sector into Standard Industrial Classification (SIC) accounts. At present, slightly over 80% of the load has been classified on a preliminary basis as indicated in Table 4-1. As the table headings indicate, the first five categories are primarily industrial or industrial related, and the remaining six are commercial activities. The industrial and commercial sectors are discussed separately.

4.2 Small Industrial

Most of B. C. Hydro's Industrial Sales are under bulk contracts, but there are a substantial number of small industrial customers classified under General Sales, comprising 28% of General Sales in 1981/82 as shown on Table 4-4. For three of the five industrial classifications (agriculture, forestry, fishing, trapping, mines and quarries; paper and allied products; and chemical and chemical products) most of B. C. Hydro's sales are to Bulk customers. Conversely, for the remaining two industrial classifications (wood manufacturing and other manufacturing[1]) most of B. C. Hydro's sales are to general customers.

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[1] Other manufacturing includes food and beverage, primary metals, metal fabricating, non-metallic minerals manufacturing, petroleum and coal products as well as new manufacturing industries.

Table 4-1

DISAGGREGATION OF GENERAL SALES

Industry	Distribution of Load 1981/82 GW.h
Classified	
SMALL INDUSTRIAL	
1. Agriculture, Forestry, Fishing, Trapping, Mines (incl. Milling) and Quarries	198
2. Paper and Allied Products	104
3. Chemical and Chemical Products	42
4. Wood Manufacturing	1 284
5. Other Manufacturing	1 082
SUB-TOTAL	2 710
COMMERCIAL AND INSTITUTIONAL	
6. Construction	151
7. Transportation, Communication and other Utilities	779
8. Wholesale and Retail Trade	1 218
9. Finance, Insurance and Real Estate	1 037
10. Community, Business and Personal Svcs.	1 748
11. Public Administration and Defence	362
SUB-TOTAL	5 295
Unclassified	1 701
TOTAL	9 706

For the first three industrial classifications, the basis of the electric energy forecast for the General category is the same as developed in Part Five for the Bulk i.e. the growth rate for sales estimated for each of the three sectors in Bulk is applied to the relevant sector in General. The electric energy requirements for these three industries are forecast to increase from the 1981/82 level of 344 GW.h to 546 GW.h in 1992/93 and to 745 GW.h in 2002/03 as shown in Table 4-2.

Because electricity sales to the wood and other manufacturing industries are predominantly in the General category, and because data limitations prevent historical analysis of the electric energy requirements in these industries, the following forecast methodology is used.

To 1985/86, information from both the Woodbridge Reed/Simons forest industry study and B. C. Hydro divisions is combined to develop the forecast of wood manufacturing electric energy requirements. The result, as shown in Table 4-2, is a decrease in sales in 1982/83 from 1981/82 and then recovery to 1985/86. The average annual growth rate from 1981/82 to 1985/86 is 4.0% per year. See Part Five for further detail on these calculations.

Also to 1985/86, the other manufacturing sector is forecast to grow at 1.2 times the GDP growth rate. As stated above, no historical data is available for other manufacturing electric energy requirements. Total General Sales have grown at 1.2 times GDP growth in the past five years. Further, the Other Bulk category is forecast to grow at greater than 1.5 times GDP to 1992/93, based on project-specific electric energy requirements.

Table 4-2

GENERAL INDUSTRIAL ELECTRIC ENERGY REQUIREMENTS[a]

(GW.h)

Year	Agric. Forestry[b] Fishing, Trapping and Mines	Paper &[b] Allied Products	Chemical &[b] Chemical Products	Sub Total	Wood Manufacturing	Other Manufacturing	Sub Total	Total
1981/82	198	104	42	344	1 284	1 082	2 366	2 710
1982/83	206	109	43	358	1 080	1 112	2 192	2 550
1983/84	215	115	44	374	1 220	1 142	2 362	2 736
1984/85	224	121	45	390	1 410	1 174	2 584	2 974
1985/86	233	126	46	405	1 500	1 206	2 706	3 111
1986/87	243	133	47	423	1 520	1 283	2 803	3 226
1987/88	253	140	49	442	1 540	1 361	2 901	3 343
1988/89	264	148	50	462	1 560	1 442	3 002	3 464
1989/90	275	155	51	481	1 580	1 528	3 108	3 589
1990/91	287	163	52	502	1 600	1 616	3 216	3 718
1991/92	299	171	54	524	1 610	1 719	3 329	3 853
1992/93	311	180	55	546	1 610	1 835	3 445	3 991
2002/03	447	228	70	745	1 610	3 344	4 954	5 699

[a] Adjustments have been made to the 1982/83 and 1983/84 results to reflect current economic conditions.

[b] Forecast based on growth rates developed for the corresponding Bulk categories. For the Agriculture, Forestry, Fishing, Trapping and Mines the rates are 4.2%/yr. to 1992/93 and 3.7%/yr. on to 2002/03 based on the metals and coal mining growth; for paper and allied products the rates are 5.1%/yr. to 1992/93 and 2.4% on to 2002/03 based on the pulp and paper industry; and for chemicals and chemical products are 2.5%/yr. to 2002/03 based on the growth rate for bulk for the first half of this period.

After 1985/86, the wood manufacturing and other manufacturing electric energy requirements are combined and forecast to grow at the GDP growth rate. This forecast reflects slower growth in the wood manufacturing sector due to resource constraints as noted by the Woodbridge Reed/Simons study, however, the study also alludes to some potential for increased output of higher value products which would require additional electric energy. Other manufacturing electric energy growth is likely to continue to exceed GDP growth, but until better information is available, the forecast methodology after 1985/86 is to avoid forecasting this sector individually by combining it with wood manufacturing.

4.3 Commercial and Institutional

For the purposes of forecasting, the commercial and institutional load which comprises 55% of General Sales in 1981/82 as shown on Table 4-4, is split into three categories:

- schools and hospitals (12% of the Commercial and Institutional Sales in 1981/82) for which floor space is forecast, based on the growth in certain population co-horts, and electric energy use per unit of floor space is estimated to derive electric energy requirements;

- commercial buildings (70% of the Commercial and Institutional Sales in 1981/82) for which a floor space index is forecast as a function of GDP growth, and future trends in use per unit of floor space are estimated to derive electric energy requirements; and

- construction, transportation, communication and other utilities (18% of the Commercial and Institutional Sales in 1981/82) for which electric energy requirements are forecast to grow at the same rate as GDP.

The electrical requirements of schools and hospitals in 1981/82 are estimated to have been 646 GW.h and are included in Table 4-1 under Item 10, Community, Business and Personal Services. The estimated requirements related to commercial floorspace use, 3 719 GW.h in 1981/82, are the sum of items 8, 9 and 11 in Table 4-1 plus Item 10 less the electrical requirements of schools and hospitals. The starting point for Construction and Transportation, Communication and Other Utilities requirements, 930 GW.h in 1981/82, are taken directly from Table 4-1.

The floor space for schools and hospitals are forecast based on the 5 to 17 year population cohort for public schools, the 19 to 29 year population cohort for post-secondary education, and the ratio of beds to population for hospitals. For the three types of activities considered here, the electric energy use factors are held constant at existing levels. This reflects the offsetting influences of conservation, and more intensive building use combined with greater use of electric equipment.

For commercial buildings, little floor space data is available, and a proxy for floor space is developed. Historically, B. C. commercial floor space is estimated to have increased about 1.5 times the growth in GDP. As discussed in Appendix E this relationship is assumed to continue to 1985, to decline to 1.25 times GDP from 1986 to 1991 and to equal GDP for the balance of the period. Using the GDP growth determined in Part One, the growth in commercial building floor space is determined.

To determine electric energy requirements for commercial buildings, a model is developed to recognize demolition of existing building stock, additions to replace demolitions and net additions to building stock. Existing building stock maintains its current electric energy use rate, but new stock is added at lower electric energy use rates.

Based on research done by the Energy Use Department of B. C. Hydro and others it is assumed that the electric energy requirements per unit of floor space for new buildings will be 80% of existing requirements for the period 1982 to 1985, 75% for the period 1985 to 1991 and 70% for the period 1992 to 2001.

The details of the schools, hospitals and commercial floor space forecasts are presented in Appendix E. The resulting electric energy requirements are presented in Table 4-3.

The effect of conservation can be determined for the commercial floor space component by assuming that new additions to stock have the same electric energy requirements per unit of floorspace as existing buildings. Comparing the electric energy requirements with and without conservation shows that consumption would increase by 525 GW.h or 10% in 1992/93 and by 1 351 GW.h or 26% in 2002/03 if no conservation is achieved.

4.4 Total General Sales and Comparisons with GDP, Population and Residential Forecasts

The electric energy requirements of the industrial and commercial sectors of the general load category are combined in Table 4-4. The unclassified sales, accounting for some 17% of the total, are increased at the same rate as the sum of the classified Industrial and Commercial Sales. The unclassified General Sales are then adjusted to include construction power for major B. C. Hydro projects. This causes the growth rate in the unclassified column of Table 4-4 to grow slightly slower than the combined classified growth rate.

Comparison of the historic and forecast growth rates of General Sales relative to growth in population, GDP and Residential Sales are shown at the bottom of the Table. These comparisons indicate:

- a reduction in future growth in General Sales relative to population and GDP reflecting conservation;

- a relationship between General Commercial and Institutional Sales and Residential Sales reflecting a similar impact of conservation on both categories.

A historic breakdown of General Sales into Small Industrial and Commercial & Institutional Sales is not yet available, limiting the comparison of historic to forecast ratios to the total sales.

Table 4-3

GENERAL COMMERCIAL ELECTRIC ENERGY REQUIREMENTS
(GW.h)

Fiscal Year	Public Schools[a]	Post Secondary Education[a]	Hospitals[a]	Transport, Comm. and Other Utilities[b]	Construction[b]	Commercial Buildings[a]	Total
1981/82	333	123	190	779	151	3 719	5 295
1982/83	331	125	190	797	154	3 819	5 416
1983/84	330	128	195	815	158	3 922	5 548
1984/85	328	130	200	834	162	4 027	5 681
1985/86	327	133	203	853	165	4 136	5 817
1986/87	330	134	206	883	171	4 275	5 999
1987/88	333	135	209	914	177	4 418	6 186
1988/89	336	136	212	946	183	4 567	6 380
1989/90	339	137	215	979	190	4 720	6 580
1990/91	343	138	220	1 013	196	4 879	6 789
1991/92	351	138	223	1 049	203	5 043	7 007
1992/93	360	139	228	1 088	211	5 186	7 212
2002/03	431	162	264	1 564	303	6 862	9 586

[a] From Appendix E

[b] Forecast at GDP growth rate

Table 4-4

SUMMARY OF GENERAL ELECTRIC ENERGY REQUIREMENTS
GW.h

	Small Industrial (GW.h)	Commercial & Institutional (GW.h)	Unclassified (GW.h)	Total (GW.h)
1980/81 (Actual)	n/a*	n/a	n/a	9 344
1981/82 (Actual)	2 710	5 295	1 701	9 706
Av. Ann. Growth: % 10 Yrs: 71/72-81/82	n/a	n/a	n/a	6.3
1982/83	2 550	5 416	1 717	9 683
1983/84	2 736	5 548	1 758	10 042
1984/85	2 974	5 681	1 818	10 473
1985/86	3 111	5 817	1 893	10 821
1986/87	3 226	5 999	1 961	11 186
1987/88	3 343	6 186	2 010	11 539
1988/89	3 464	6 380	2 066	11 910
1989/90	3 589	6 580	2 127	12 296
1990/91	3 718	6 789	2 192	12 699
1991/92	3 853	7 007	2 266	13 126
1992/93	3 991	7 212	2 337	13 540
2002/03	5 699	9 586	3 160	18 445
Av. Ann. Growth: % 11 Yrs: 81/82-92/93	3.6	2.8	2.9	3.1
Av. Ann. Growth: % 10 Yrs: 92/93-02/03	3.6	2.9	3.1	3.1

Ratios of Growth in General Sales to Growth in:

		Small Industrial	Commercial & Institutional	Unclassified	Total
Population	1971-81	n/a	n/a	n/a	2.74
	1981-92	2.00	1.56	1.61	1.72
	1992-02	2.00	1.61	1.72	1.72
GDP	1971-81	n/a	n/a	n/a	1.34
	1981-92	1.16	0.90	0.94	1.00
	1992-02	0.97	0.78	0.84	0.84
Residential Sales	1971/72-81/82	n/a	n/a	n/a	0.93
	1981/82-92/93	1.29	1.00	1.04	1.11
	1992/93-02/03	1.38	1.12	1.19	1.19

* n/a 'not available'

PART FIVE

ELECTRIC-PROBABLE BULK SALES

Page

5.1 Introduction 83

5.2 Pulp and Paper, and Wood Manufacturing 83

Table 5-1 Electric Energy Requirements for Pulp and Paper and Wood Manufacturing 88

5.3 Chemicals for Pulp and Paper 89

Table 5-2 Electric Energy Requirements for Chemicals for Pulp and Paper 89

5.4 Metals Mining and Smelting 90

Table 5-3 Electric Energy Requirements for Metals Mining and Smelting 94

5.5 Coal Mining 95

Table 5-4 World Coal Imports 96

Table 5-5 Hypothetical Trading Preferences for Sources of Coal Supply - Year 2000 97

Table 5-6 B. C. Coal Production Projections 101

Table 5-7 Electric Energy Requirements for Coal Mining 102

5.6 Petrochemicals and LNG 102

Table 5-8 Electric Energy Requirements for Petrochemicals and LNG 105

5.7 Other Bulk Loads 106

Table 5-9 Electric Energy Requirements for Other Bulk Loads 107

5.8 Total Bulk Electric Energy Requirements 107

TABLE 5-10 Composition of Bulk (1800 Series) Sales 108

PART FIVE
ELECTRIC-PROBABLE BULK SALES

5.1 Introduction

The Bulk Sales category comprises over 60 large industrial and institutional loads served by B. C. Hydro and represented 33% , or 9 339 GW.h of total billed sales in 1981/82. For that year, the Sales (and percent share) of bulk categories were:

- pulp and paper and wood manufacturing, 4 494 GW.h (48%);
- chemicals for pulp and paper, 1 241 GW.h (13%);
- metals mining and smelting, 2 637 GW.h (28%);
- coal mining, 326 GW.h (4%); and
- other bulk, 641 GW.h (7%).

The forecast of electric energy requirements for each of these sectors, and the Petrochemical and LNG sector, are presented in the remainder of this Part of the Load Forecast.

5.2 Pulp and Paper and Wood Manufacturing

The pulp and paper and wood manufacturing sector accounted for 48% of B. C. Hydro's bulk sales in 1981/82 and accounts for 41% of the growth in bulk sales to 1992/93. To assist in the electric energy forecast of this sector, B. C. Hydro commissioned a study: Projected Energy Requirements to the Year 2000 - B. C. Forest Industry by Woodbridge, Reed and Associates Ltd. and H. A. Simons (International) Ltd., August, 1982.

The study procedure commenced with an analysis of timber availability from Crown and private lands. Separate forecasts are made for each of B. C. Hydro's five divisions plus the Boundary area served by West Kootenay Power and Light. Short term (20 year) allowable annual cuts (AAC's) for Timber Supply Areas (TSA's) are obtained from the Ministry of Forests as are the AAC's for Tree

Farm Licenses (TFL's), Certified Tree Farms and Farm Wood Lots. Where TSA analysis has not been completed by the Ministry, appropriate estimates are made by the consultants.

The consultants also estimated the annual volume of timber likely to be available from unregulated Crown and private lands plus Forest Licenses not included in TFL and TSA allowable cut determinations. In addition, an estimate is made of the volume of pulpwood that can be obtained from logging residues and problem forest types not included in the resource base used for AAC determination. Parks, Ecological Reserves and environmental protection forests were not considered as potential contributors to the timber supply.

Using regional average stand conversion factors developed by the Ministry of Forests, regional allowable annual cuts are divided into sawlog and pulpwood components. The future sawlog supply is constrained to the extent that the 1980-2000 average annual sawlog harvest would not exceed 105% of the sawlog volume estimates obtained from application of the Ministry's stand conversion factors.

The regional structure of the existing forest products industry is examined on a mill by mill basis for the pulp and paper, veneer and plywood and other panelboard industries. All major sawmills producing in excess of 50 million board feet of lumber per year are enumerated but the smaller mills are grouped together by region. Shingle/shake mills, secondary wood product manufacturers and secondary paper/board product manufacturers are not included in the analysis as this industrial group does not consume large quantities of electric energy.

As pulp and paper mills are by far the largest consumers of electric energy within the forest products industry, actual production data are used for each mill for the 1980-81 base period. Electrical energy requirements are then determined and, based on

1980-81 B. C. Hydro sales data, are subdivided into purchased and self-generated electricity.

Base case wood industry production data are obtained from industrial associations and Statistics Canada. Electric energy requirements are estimated through the use of average industrial use factors applicable to the various industrial sub-groups and regions. Since no allowance is made for in-plant generation, estimated electricity purchases may be slightly high.

A market outlook for B. C. forest industry products is prepared and the findings are translated into demand schedules for each of the major products. Fibre supply/demand balances are calculated by region. Announced and intended expansions in industrial converting capacities are taken into account during this process. The result is that fibre supply is not a constraint on production during the 1982-85 period. However, in the years beyond 1986, the estimated availability of sawlogs place a limit on softwood lumber production. Also, the apparent absence of large concentrations of low cost pulp fibre coupled with very high capital costs likely preclude the building of any new greenfield market bleached kraft pulp (BKP) mills within the province.

The future electric energy requirements by forest sector and region are calculated based on current experience and forecast trends in technology, production, energy consumption and energy conservation. This is done at a regional rather than a mill by mill level. Drawing on knowledge of the actual situation during the base period (1980-81), known plans and forecast trends, electric energy requirements are subdivided between self-generated and purchased power.

For the pulp and paper industry, the consultants indicate that a significant effect on power requirements is the phasing out of stone groundwood in the Coastal newsprint mills and replacement by thermo-mechanical pulp, (TMP). TMP also has the capability of replacing a portion of the chemical pulp in newsprint. At present the chemical pulp content of newsprint produced in B. C. is about 20 to 25 percent. By 1990 when stone groundwood production is projected to cease, the chemical pulp content for newsprint is projected to be 8 to 10 percent. The electric energy requirement per tonne of newsprint based on TMP will be considerably higher than used to produce newsprint based on stone groundwood.

5.2.1 Pulp and Paper Sales

B. C. Hydro used the consultant's estimates of purchased electric energy requirements for all pulp and paper manufacturing with two modifications:

- the consultant's estimates reflect only the electric energy requirements for pulp and paper manufacturing whereas B. C. Hydro metering of bulk customers includes all operations at that site. In some instances, these operations include wood manufacturing as an integral part of the plant's operations. Consequently the actual sales figures for B. C. Hydro are higher than the consultant's estimate. Discussions with the consultant and B. C. Hydro's analysis indicate that the additional sales for wood manufacturing at pulp and paper mills is approximately 250 GW.h. This figure is added onto all the consultant's figures to obtain the B. C. Hydro sales forecast to pulp and paper mills; and
- the consultant's estimates of electric energy requirements are adjusted downward slightly in the first three years to reflect an anticipated slower economic recovery in the pulp and paper industry.

See Table 5-1 for projected sales to 1992/93.

5.2.2 Wood Manufacturing Sales

For wood manufacturing, which includes bulk and general customers, the consultant's estimates of actual electric energy requirements for 1980 and 1981 do not agree with B. C. Hydro's actual sales. For 1981, the consultant estimates 2 119 GW.h whereas B. C. Hydro sales for fiscal 1981/82 are estimated at 1 507 GW.h. There are several reasons for differences:

- the consultant calculates total electrical energy requirements using an average factor for kW.h per unit of production multiplied by total production;
- there is some self generation in the wood manufacturing industry that the consultant's report does not reflect;
- B. C. Hydro meters some wood manufacturing load as part of pulp and paper complexes. This is estimated at 250 GW.h for 1981/82;
- there are some differences between calendar year sales used by the consultant, and fiscal year sales used by B. C. Hydro; and
- B. C. Hydro has some unclassified general sales which may contain some wood manufacturing load.

Because all of these differences could not be quantified, the base year estimates of electric energy requirements by the consultants and by B. C. Hydro could not be completely reconciled. Consequently, for forecasting, B. C. Hydro adopted the consultant's lumber production forecast for the B. C. Hydro area with 1981 as the base year, and B. C. Hydro's General plus direct Bulk sales of 1 507 GW.h for 1981/82 as actual and base year. Electric energy requirements were then projected using the base year ratio of electric energy/lumber production and the consultant's forecast of lumber production. The result is a somewhat lower sales projection than the consultants', but a projection consistent with known sales experience.

The electric energy requirements for wood manufacturing are apportioned between Bulk and General based on existing Bulk customers and plans of existing General customers to transfer to Bulk rate. See Table 5-1 for sales in the Bulk category.

Table 5-1

BULK
ELECTRIC ENERGY REQUIREMENTS FOR PULP AND PAPER AND WOOD MANUFACTURING
(GW.h)

Year	Pulp & Paper	Wood Manufacturing	Total
1980/81	4 738	234	4 972
1981/82	4 271	223	4 494
1982/83	4 700	220	4 920
1983/84	5 000	270	5 270
1984/85	5 350	330	5 680
1985/86	5 600	340	5 940
1986/87	5 800	340	6 140
1987/88	6 000	340	6 340
1988/89	6 250	340	6 590
1989/90	6 550	340	6 890
1990/91	6 850	340	7 190
1991/92	7 150	340	7 490
1992/93	7 450	340	7 790

5.3 Chemicals for Pulp and Paper

The pulp and paper industry requires several chemicals for processing. Discussions with the pulp and paper consultants indicate that electric energy requirements for chemical products will have relatively little growth.

The main reason for the modest growth is the limited expansion in the production of chemical pulp. As shown on Table 5-2, current poor economic conditions have reduced electric energy requirements in this industry from 1980/81 levels. It is not until 1985/86 that historic sales levels are attained, followed by modest growth at existing facilities.

Table 5-2

BULK
ELECTRIC ENERGY REQUIREMENTS FOR
CHEMICALS FOR PULP AND PAPER
(GW.h)

Year	Chemicals for Pulp and Paper
1980/81	1 426
1981/82	1 241
1982/83	1 190
1983/84	1 280
1984/85	1 390
1985/86	1 450
1986/87	1 480
1987/88	1 510
1988/89	1 530
1989/90	1 550
1990/91	1 560
1991/92	1 560
1992/93	1 560

5.4 Metals Mining and Smelting

This portion of the load forecast is based on a study commissioned by B. C. Hydro. Forecast of Power Consumption by the B. C. Mining and Smelting Industries by Wright Engineers Limited and H. N. Halvorson Consultants Ltd., July, 1982.

It examined, on a mine by mine basis the existing and potential production of copper, molybdenum, lead/zinc, gold/silver and other metals. The study also examined British Columbia smelting activity for lead/zinc, copper, aluminum, ferrosilicon and molybdenum roasting.

5.4.1 Metals Mining

The consultant's study reviewed the demand and price outlook for major metals produced in British Columbia, and used this information to assess the potential for production from provincial ore deposits.

The study shows that copper and molybdenum production accounted for over 60% of the 1981 value of major metals produced in British Columbia and virtually all of the purchased electric energy requirements. A brief summary of trends in copper and molybdenum production is provided here, and details are available in the study.

With respect to copper, the general pattern is for a recovery in production from existing mines after a series of cutbacks and shutdowns in 1982. Production from existing copper mines is forecast to become tentative when their typical annual production rate depletes known reserves, and several mines cease production during the forecast period due to reserve exhaustion. One new copper mine is forecast to commence production in the 1980's and eight others are expected to come on stream during the 1990's.

The resulting forecast of British Columbia copper production rises slightly over the 1980's and then declines significantly during the 1990's as the closure of existing mines more than offsets production at new mines.

A substantial amount of molybdenum is produced as a co-product with copper, and their forecast production patterns are similar. Other molybdenum production, not associated with copper, increases with recovery by the mid-1980's and then as new mines commence production, in 1990 and 2000.

The study's projections of electricity energy requirements for metals mining are used as the base for B. C. Hydro's September 1982 Load Forecast which is shown on Table 5-3. The following additional considerations resulted in the modified projections of sales by B. C. Hydro:

- 1982/83 is estimated based on specific mine-by-mine information obtained by B. C. Hydro. The result agrees closely with the consultant's estimate;

- 1983/84 and 1984/85 were reduced somewhat from the consultant's figures to reflect anticipated slower recovery of the economy;

- the years after 1984/85 generally reflect a base load of the consultant's firm plus tentative purchased electricity. The inclusion of tentative electric energy requirements reflects the consultant's definition of tentative as being production after the earliest closing date of the mine, i.e. no additional ore or low grade ore is used or found, and normal production levels are sustained to deplete the existing ore;

- Bethlehem/Valley Copper plans as received through B. C. Hydro's Special Power Contracts Department reflect a more optimistic development scenario than shown in the study. It is assumed for this forecast that Bethlehem will approximately double their capacity by 1987/88 to 320 GW.h. An additional 160 GW.h is assumed to be used by 1991/92. The consultant shows the first increase in 1989 and then assumes no further growth;

- the Schaft Creek and Stikine copper deposits in Northwest B. C. are projected by the consultant to be developed in the late 1990's with self-generation. This forecast assumes purchased electricity from B. C. Hydro will be used because:
    - Provincial government policy indicates that generation of hydro power of the magnitude required is to be carried out by B. C. Hydro;
    - other types of generation would be expensive; and
    - B. C. Hydro may eventually develop the Iskut-Stikine for generation which would allow transmission lines to be within economic reach of the two deposits;
- in all cases growth and decline in electric energy requirements are trended or smoothed from the specific mine-by-mine assessment to avoid sharp discontinuities associated with large changes in electric energy requirements.

5.4.2 Smelting

The consultant's study forecasts several new smelters to begin production in British Columbia and the continuation of production at existing smelters. Much of the electric energy required for both existing and new smelters is expected to be supplied by self-generation.

Specifically, the consultant forecasts:

- a new copper smelter to commence production in the early 1990's;

- an increase in production at the existing lead/zinc smelter during the 1980's and a new lead/zinc smelter in the mid-1990's;
- one additional molybdenum roasting operation to commence in 1990;
- two additional smelters by Alcan starting operation in early and mid-1990's, and a potential for another, unknown aluminum smelter in 2000;
- a ferrosilicon smelter starting operation as early as 1986;
- a possible silicon smelter starting after the ferrosilicon project and as early as 1990.

The study indicates that the copper smelting, molybdenum roasting and the new lead/zinc smelter would purchase electricity from B. C. Hydro and the remaining new smelting operations would use self-generated electricity.

After discussions with the consultant and industry, B. C. Hydro's forecast electric energy requirements for the smelting industry is shown on Table 5-3 and includes/assumes:

- the new copper smelter starting operations in 1990/91;
- the new lead/zinc smelter starting operations in the mid 1990's;
- a Cominco requirement for electricity to be purchased from B. C. Hydro of 70 GW.h in 1986/87 rising to 160 GW.h in 1987/88 and thereafter. This requirement has been requested by Cominco and is considerably reduced from their requested requirements included in the September 1981 Load Forecast. Cominco is required to supply 75 average annual MW (650 GW.h) of electric energy to West Kootenay Light and Power to 1990. Starting in 1991, Cominco can use this block of electricity for its own operation. It is assumed that Cominco will utilize this energy in either zinc production expansion or a ferrosilicon smelter. No additional energy over the 160 GW.h, however, is assumed to be purchased from B. C. Hydro;

- new aluminum smelting operations would use self-generated electricity;
- no ferrosilicon smelter will be specifically served by B. C. Hydro;
- none of the consultant's purchased tentative electric energy requirements shown to start operations in 2000 are specifically included in B. C. Hydro's long term projections.

Table 5-3

BULK
ELECTRIC ENERGY REQUIREMENTS FOR
METALS MINING AND SMELTING[a]
GW.h

Year	Metal Mining	Smelting	Total
1980/81	2 265		2 265
1981/82	2 637		2 637
1982/83	2 290		2 290
1983/84	2 500		2 500
1984/85	2 700		2 700
1985/86	2 900		2 900
1986/87	3 000	70	3 070
1987/88	3 100	160	3 260
1988/89	3 150	160	3 310
1989/90	3 200	160	3 360
1990/91	3 250	390	3 640
1991/92	3 300	390	3 690
1992/93	3 300	390	3 690

[a] Electric energy requirement supplied by B. C. Hydro. Self-generated electric energy requirements are not included.

5.5 Coal Mining

The forecast of electric energy requirements for mining coal is developed in three steps. First, a demand forecast for Western Canadian coal by sources outside British Columbia and Alberta, both domestic and export, is generated using published coal studies. Second, available information on the various coal mine developments presently under construction or being proposed for Western Canada is reviewed. Finally, a production schedule is developed taking into account the likely demand for coal and, in the short term, the capacity that will be in place to meet that demand.

The approach to forecasting the future overseas demand for British Columbia coal is first to use the projections of the 1980 World Coal Study which presents a comprehensive analysis of demands and sources of supply, and then to adjust the results to reflect more recent demand projections.

According to the World Coal Study (WOCOL), total demand for coal is expected to reach 6 to 7 billion tonnes in 2000, or 40 to 50% of world energy needs at that time. In order to meet this demand, coal imports by consuming nations are forecast to increase from an estimated 190 million tonnes in 1977 to between 560 and 980 million tonnes in the year 2000, an average annual increase of 5% to 7%. In the report, exports to the Japanese, Asian and Latin American markets are forecast to increase from 70 million tonnes to 290 to 490 million tonnes over the same period, as shown in Table 5-4. Table 5-5 summarizes the sourcing preferences identified for importing nations in 2000, and are based on considerations given to the diversification of supply, selling price and transportation costs. Between 55 and 120 million tonnes are indicated as being supplied by Canada.

Table 5-4
WORLD COAL IMPORTS
(millions of tonnes)

Country/Region	1977 Actual	1985 Case A	1985 Case B	1990 Case A	1990 Case B	2000 Case A	2000 Case B
Steam Coal							
Denmark	4.6	10.7	11.1	13.7	14.4	9.4	20.9
Finland	4.1	3.4	3.4	6.5	6.5	7.7	12.4
France	14.0	11.0	34.0	14.0	51.0	26.0	100.0
Germany, Fed. Rep.	3.0	9.0	11.0	18.0	26.0	20.0	40.0
Netherlands	1.5	7.0	7.0	9.8	13.0	19.9	34.2
Sweden	0.3	2.9	3.2	5.1	11.5	14.3	23.1
Other Western Europe[b]	7.0	13.0	13.0	17.6	19.2	32.0	42.0
Japan	2.0	6.0	7.0	24.0	33.0	53.0	121.0
East and Other Asia[b]	-	5.0	24.0	11.5	46.9	60.0	179.0
Latin America[a]	4.5[a]	18.8	18.8	27.5	27.5	55.5	55.5
Other World[b]	19.0	18.2	17.5	7.3	26.0	2.2	51.9
Total World	60	105	150	155	275	300	680
Metalurgical Coal							
Finland	0.9	1.0	1.0	1.0	1.0	1.0	1.0
France	10.0	11.0	12.0	11.0	13.0	12.0	15.0
Netherlands	3.0	3.4	3.4	3.3	3.6	2.9	4.0
Sweden	1.8	2.2	2.2	2.4	2.4	2.8	2.8
Other Western Europe[b]	6.0	10.0	13.0	13.4	17.6	24.0	32.0
Japan	60.0	73.0	76.0	77.0	79.0	79.0	85.0
East and Other Asia[b]	3.0	10.0	16.0	15.9	23.0	40.0	48.0
Latin America[a]	1.2[a]	3.3	3.3	0.7	0.7	5.4	5.4
Other World[b]	44.1	56.1	53.1	65.3	64.7	92.9	106.8
Total	130	170	180	190	205	260	300
Total World Imports	190	275	330	345	480	560	980

NOTE: Total world import estimates are rounded to nearest 5 in WOCOL study. Other world estimates are the balancing figure and, as such the importance of small variations between low and high estimates should be discounted.

SOURCE: Coal-Bridge to the Future, Report of the World Coal Study (WOCOL), 1980.

[a] 1975 Data.

[b] 1990 figures determined by interpolation between 1985 and 2000 estimates.

MR110

Table 5-5
HYPOTHETICAL TRADING PREFERENCES FOR SOURCES OF COAL SUPPLY - YEAR 2000
(millions of tonnes)

Importer Country/Region	Exporter Source Country															
	Case A								Case B							
	Australia	United States	South Africa	Poland	Canada	Peoples Republic of China	Other	Total Sources	Australia	United States	South Africa	Poland	Canada	Peoples Republic of China	Other	Total Sources
Denmark	1	-	2	3	1	-	2	9	2	2	6	5	2	1	3	21
Finland	-	1	-	5	1	-	2	9	1	2	-	5	2	1	2	13
France	7	4	8	5	3	1	10	38	28	24	20	7	19	1	16	115
Germany, Fed. Rep.	6	5	3	2	1	2	1	20	12	10	5	4	2	4	3	40
Italy	7	6	4	4	-	1	6	28	16	9	12	8	-	3	10	58
Netherlands	6	2	6	6	1	-	2	23	10	5	10	11	1	-	1	38
Sweden	4	2	-	4	3	-	4	17	7	3	-	6	5	1	4	26
United Kingdom	1	-	-	-	-	-	1	2	12	-	-	5	-	-	-	17
Other Western Europe	11	8	9	12	3	-	12	56	18	13	12	11	6	2	12	74
OECD Europe	43	28	32	41	13	4	40	200[a]	106	68	65	62	37	13	51	400[a]
Canada	-	17	-	-	-	-	-	17	-	9	-	-	-	-	-	9
Japan	45	43	5	1	18	10	10	132	78	66	6	1	25	16	14	206
East and Other Asia	34	23	15	-	20	4	4	100	86	52	33	-	48	-	8	227
Africa	1	1	-	-	-	-	1	3	12	10	-	-	5	-	3	30
Latin America	18	13	-	6	6	-	17	60	18	13	-	6	6	-	17	60
Centrally Planned Econ.	-	-	-	25	-	-	25	50	-	-	-	25	-	-	25	50
TOTAL WORLD[a]	140	125	55	70	55	20	95	560	300	215	105	95	120	30	115	980

[a] Totals are rounded.

SOURCE: Coal - Bridge to the Future, Report to the World Coal Study (WOCOL), 1980.

MR110

Total Canadian coal consumption is forecast to increase from the 1979 level of 35 million tonnes to 80 to 120 million tonnes in 2000, depending on the forecast used[1]. The majority of this increase is based on increased use of thermal coal by electric utilities and expanded use for other industrial applications. Only moderate increases in demand for metalurgical coal by the steel industry are anticipated. Based on the reports reviewed, interprovincial coal trade is forecast to increase to 6 to 12 million tonnes in 1990 and 12 to 22 million tonnes in 2000.

Combining WOCOL estimates for international preferences and available information for interprovincial coal trade, total demand for British Columbia and Alberta coal from consumers outside these provinces will reach 62 to 137 million tonnes in 2000 after deducting 5 million tonnes per year supplied from the Maritime provinces.

During 1980, export demand for coal from British Columbia and Alberta reached 17.1 million tonnes. By 1985, total coal production capacity in British Columbia is expected to be 24.2 million tonnes based on new projects and expansions now under construction. Some 9.4 million tonnes of capacity is expected in Alberta, excluding additions to meet local demand. As a result, capacity to supply non local demand is forecast to reach 33.6 million tonnes in the two provinces by 1985.

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[1] The WOCOL study projects Canadian domestic consumption to be in the 82 to 121 millions tonne per year range by 2000 and a Discussion Paper on Coal by Energy Mines and Resources Canada (1980) estimates a range of 95 to 120 million tonnes in 2000.

Recent information[2] on Japanese demand, which is the destination for a majority of the coal exported from British Columbia, suggests that Japanese demand for metalurgical coal may be 15% below levels forecast in the WOCOL study for 1985 and 1990. Consequently, current and near-term additions to existing coal production capacity may be based on high demand estimates. For the purpose of this forecast, actual coal production is projected to be below capacity in 1985 by 15% in proportion to reduced market demand. Thus, total production will only reach 28 million tonnes in 1985, compared to a capacity of 33 million tonnes.

Between 1985 and 1990, existing mines in B. C. and Alberta are forecast to increase production to capacity limits. Some 9 million tonnes of additional capacity from new mines will be completed resulting in total production of 42.5 million tonnes in 1990. In light of current economic conditions, it is believed that the lower limit of the projected coal demand in 2000 represents the most likely scenario given present conditions. The provincial breakdown and projections to the year 2000 are as follows:

	British Columbia	Alberta	Total
1979	10.2	5.4	15.6
1980	10.6	6.5	17.1
1985	20.0	7.8	27.8
1990	28.5	14.0	42.5
1995	39.7	19.0	58.7
2000	43.7	22.8	66.5

Table 5-6 lists the B. C. mines and production levels over the forecast period.

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[2] "Canadian Coal for Japan" prepared for Canada-Japan Trade Council in May 1982 by K.A.J. Hay, S. R. Hill and S. S. Rahman estimates Japanese coking coal imports to be 63.2 million tonnes in 1985, compared to 73 to 76 million tonnes in the WOCOL study, and to be 67.4 million tonnes in 1990, compared to 77 to 79 million tonnes in the WOCOL study.

Electric energy requirements for British Columbia coal mining during the 1981/82 fiscal year, excluding the Byron Creek facility served from Alberta, reached 326 GW.h. Based on information received from the mining companies listed in Table 5-6 the average amount of electric energy consumed for coal mining is forecast to increase from 32 kW.h per tonne in 1980 to 40 kW.h per tonne by 1990 due to higher stripping ratios and an increasing use of conveyor systems to transport coal and overburden. The major impact of these changes is expected by 1990 and only marginal increases in the unit electric energy use are forecast to 2002/03. Combining the production and electric energy use forecasts results in the electric energy requirements shown on Table 5-7.

The Byron Creek facility is not included in the earlier years of the forecast. However, it is anticipated that the Byron Creek mine will be expanded during the 1985 to 1990 period, at which time it is expected B. C. Hydro will begin to supply the necessary electric energy, and the mine's requirements are included in the above forecast for the 1987/88 fiscal year and beyond.

Table 5-6
BRITISH COLUMBIA COAL PRODUCTION PROJECTIONS
(millions of tonnes)

MINE	SPONSOR	1980		1985		1990		1995		2000	
		MET	THERMAL	MET	THERMAL	MET	THERMAL	MET	THERMAL	MET	THERMAL
Southeast											
Elkford	Fording Coal	3.0	-	3.0	0.5	4.5	0.5	4.5	0.5	4.5	0.5
Balmar	B. C. Coal	6.3	0.1	6.4	0.1	7.3	0.1	7.3	0.1	7.3	0.1
Byron Creek	Esso Minerals	-	1.2	-	1.2	-	4.0	-	4.0	-	4.0
Greenhills	B. C. Coal	-	-	1.4	-	1.8	-	1.8	-	1.8	-
Line Creek	Crows Nest Res.	-	-	0.8	1.1	1.0	1.1	1.0	1.1	1.0	1.1
Future		-	-	-	-	-	-	4.0	2.2	4.0	2.2
SUBTOTAL		9.3	1.3	11.6	2.9	14.6	5.7	18.6	7.9	18.6	7.9
Northeast											
Bullmoose	Teck Corp	-	-	1.4	-	1.7	-	1.7	-	1.7	
Quintette	Denison	-	-	4.1	-	5.0	1.5	5.0	1.5	5.0	1.5
Monkman	Petro Canada	-	-	-	-	-	-	3.0	-	-3.0	-
Future		-	-	-	-	-	-	-	-	4.0	-
SUBTOTAL		-	-	5.5	-	6.7	1.5	9.7	1.5	13.7	1.5
Other Areas											
Future		-	-	-	-	-	-	-	2.0	-	2.0
TOTAL BRITISH COLUMBIA		9.3	1.3	17.1	2.9	21.3	7.2	28.3	11.4	32.3	11.4

MR110

Table 5-7

BULK
ELECTRIC ENERGY REQUIREMENTS FOR
COAL MINING
GW.h

Year	Coal Mining
1980/81	302
1981/82	326
1982/83	325
1983/84	460
1984/85	575
1985/86	660
1986/87	735
1987/88	840
1988/89	920
1989/90	1 010
1990/91	1 140
1991/92	1 220
1992/93	1 300

5.6 Petrochemicals and LNG

British Columbia's natural gas and natural gas liquids resource base combined with access to tidewater have resulted in recent interest in developing petrochemical and liquified natural gas (LNG) facilities. The first world scale petrochemical project in British Columbia, a methanol plant at Kitimat, is scheduled to commence operation in 1982.

The British Columbia government recently established a process for evaluating petrochemical and LNG proposals. The government has approved an LNG project which is scheduled to commence operation in 1986. Approval of other projects awaits further analysis and negotiations by government and industry.

The LNG project, with a proposed location north of Prince Rupert, will annually export 160 PJ (2 900 kt) of LNG to a group of

Japanese utilities. Japan's energy policy encourages the use of LNG as fuel for base load electric energy generation, and 16 800 kt of LNG were imported into Japan in 1980.

The natural gas requirement for the LNG plant is more than may be available from British Columbia sources, and the project is expected to use Alberta natural gas for a majority of its requirements. The combined stream of Alberta and British Columbia natural gas will move through a pipeline to the plant site.

The project still has to receive approval from other regulatory bodies, including the National Energy Board (NEB). The sales contract, financing package, LNG price, natural gas load factor and diversification of market all appear to meet NEB criteria for export permission. A final decision from the NEB is expected in late 1982 or early 1983 after current hearings are completed on several applications for natural gas exports from Canada.

Discussions with industry indicate that the market potential for additional LNG sales is good. Although there is a review of Japanese energy policy underway, and there are other countries seeking access to the Japanese LNG market, additional LNG supply from Canada is expected. Given the location preference for the first LNG facility, a second, twin facility is forecast to commence operation north of Prince Rupert in the mid-1990's.

The project sponsor for the first LNG plant has requested B. C. Hydro to supply the plant's electric energy requirements. Discussions with the sponsor indicate the project would have a 135 MW demand and 1050 GW.h annual electric energy use, and the same requirements are associated with a second plant, even if it shares the same location as the first plant. These requirements are shown in Table 5-8.

Natural gas production in British Columbia also results in the co-production of natural gas liquids such as ethane, propane and butane. These products can be separated from natural gas at an extraction facility. Some of the proposals received by the British Columbia government for petrochemical projects utilize these extracted products in an ethylene and derivatives plant. However, recent discussions with the project sponsors indicate that changes in market conditions have caused slippage in the commencement of production. Further, the location of such a petrochemical project in the Lower Mainland as proposed by one sponsor may not receive government approval.

As a result of these events, the ethylene and derivatives project, as well as the natural gas liquids extraction plant have been delayed to allow markets to recover and develop. The delay in start-up of the ethylene project is from 1986 to 1991 and contemplates planned expansion at Alberta petrochemical plants to proceed before the British Columbia project.

The extraction facility, which is a "deep cut"[1] to allow recovery of ethane as well as propane and butane, is forecast to commence production in 1989 and build to full capacity in 1991 when the ethylene and derivatives plant is operational. Excess natural gas liquids recovered before and during start-up of the ethylene facility are assumed to be exported or used in the British Columbia fuel market. In fact, if export or non-petrochemical provincial markets develop for these resources, the extraction plant would proceed without the ethylene and derivatives facility.

The electric energy requirements for these projects are shown on Table 5-8 to 1992/93, and are determined by their size and the types of process. The extraction plant consists of a turbo-expander sized to accommodate the expected volume and liquids content of the gas stream. Discussions with industry indicate that the plant would have a 40 MW demand and 300 GW.h annual electric energy use.

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[1] A "deep cut" means the extraction facilities are capable of recovering a large portion of the natural gas liquids. A "shallow cut" recovers less of the liquids.

The ethylene and derivatives plant is an integrated petrochemical project with several products. Such a project configuration is required because the available volume of natural gas liquid feedstock results in an ethylene plant sized somewhat below world scale. An integrated plant, where the ethylene and other resource inputs are processed to high-valued products, makes the project commercially feasible. Discussions with industry indicate that a plant with these characteristics would have a 55 MW demand and 430 GW.h annual electric energy use.

Finally, although the British Columbia government received several proposals for ammonia projects, only one has been included in this forecast. Commencement of production from this facility has been delayed to 1988 to allow for market recovery from current conditions. The plant, which would be world scale and export most of its product would require 90 GW.h of annual electric energy use.

Table 5-8

BULK
ELECTRIC ENERGY REQUIREMENTS FOR
PETROCHEMICALS AND LNG[a]
(GW.h)

Year	LNG	Natural Gas Liquids Extraction	Ethylene and Derivatives	Ammonia	Total
1986/87	530				530
1987/88	820				820
1988/89	940			30	970
1989/90	1 000	100		50	1 150
1990/91	1 050	200		70	1 320
1991/92	1 050	300	180	90	1 630
1992/93	1 050	300	340	90	1 780

[a] A world scale methanol plant commencing operation in 1982 has modest electric energy requirements and is not classified as a bulk customer.

5.7 Other Bulk Loads

B. C. Hydro serves a substantial number of other bulk loads in several sectors of the economy. Table 5-9 shows the forecast electric energy requirements by category.

No new refineries are forecast during the study period. Growth in bulk electric energy requirements for refineries results from a transfer from general to bulk load classification and modest expansion as indicated by two refiners.

No new cement plants are forecast during the study period. Growth in bulk electric energy requirements for cement plants results from increased utilization of facilities already in place.

Several new bulk commodity terminals are forecast during the study period. Growth in bulk electric energy requirements for commodity terminals results from a transfer from general to bulk classification, and new terminals commencing operation. These new terminals are under construction and are designed to handle grain, coal and other bulk commodities. Electric energy requirements at each new terminal are estimates from sponsors or downward revisions of these estimates based on B. C. Hydro's experience.

Several new transportation loads are forecast during the study period. Growth in bulk transportation electric energy requirements is based on discussions with project sponsors, and results from installation of electrically driven natural gas compression for the Vancouver Island natural gas pipeline and a portion of the natural gas pipeline to the LNG plant near Prince Rupert. The other new transportation electric energy requirement is the electrification of British Columbia Railway's new line to serve Northeast coal developments.

Loads in the 'remainder' classification include one industrial manufacturing operation, one Federal establishment (DND - Esquimalt) and one institution (UBC). Growth of bulk electric energy requirements results from increased loads at these facilities, particularly the latter two, and reflects discussions between the customers and B. C. Hydro.

Table 5-9

BULK
ELECTRIC ENERGY REQUIREMENTS FOR
OTHER BULK LOADS
GW.h

	1981/82 (actual)	1986/87	1992/93
Refineries	247.5	305	340
Cement Plants	128.5	165	215
Bulk Commodity Terminals	25.0	95	135
Transportation	-	55	140
Remainder	239.8	280	345
TOTAL	641	900	1 175

5.8 Total Bulk Electric Energy Requirements

TABLE 5-10 summarizes the forecast of bulk electric energy requirements discussed in this part of the Load Forecast.

TABLE 5-10

B. C. HYDRO
COMPOSITION OF BULK (1800 SERIES) SALES
PROBABLE PROJECTIONS
TOTAL ALL DIVISIONS

	PULP & PAPER & WOOD MANUFACTURING			CHEMICALS FOR PULP & PAPER			METAL MINING & SMELTING			COAL MINING			PETRO-CHEMICALS			OTHER			TOTAL BULK SALES		
	Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy	
FISCAL YEAR	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total
HISTORIC																					
1971/72	605	3 833	65.4	130	948	16.2	158	696	11.9	33	120	2.0				39	263	4.5	965	5 860	100.0
72/73	625	3 999	56.6	161	1 134	16.0	247	1 467	20.8	33	182	2.6				45	284	4.0	1 111	7 066	100.0
73/74	621	4 278	55.0	164	1 254	16.1	253	1 759	22.6	33	181	2.4				46	304	3.9	1 117	7 776	100.0
74/75	662	4 285	55.5	171	1 237	16.0	251	1 695	22.0	35	199	2.6				47	298	3.9	1 166	7 714	100.0
75/76	664	3 527	51.8	173	975	14.3	256	1 715	25.2	35	211	3.1				70	380	5.6	1 198	6 808[a]	100.0
1976/77	657	4 506	55.2	184	1 254	15.3	260	1 786	21.9	36	165	2.0				75	455	5.6	1 212	8 166	100.0
77/78	671	4 490	52.9	185	1 349	15.9	280	1 947	23.0	42	227	2.7				76	466	5.5	1 254	8 479	100.0
78/79	748	4 962	54.3	189	1 419	15.5	290	1 963	21.5	44	265	2.9				93	524	5.8	1 364	9 133	100.0
79/80	725	4 898	53.1	189	1 372	14.9	294	2 085	22.6	47	259	2.8				108	603	6.6	1 363	9 217	100.0
80/81	756	4 972	51.8	191	1 427	14.9	337	2 264	23.6	50	302	3.1				120	632	6.6	1 454	9 597	100.0
1981/82	837	4 494	48.1	186	1 241	13.3	388	2 637	28.2	55	326	3.5				115	641	6.9	1 581	9 339[b]	100.0
Av.Ann.Grwth. 10 Yrs 71/72-81/82		1.6			2.7			14.3			10.5						9.3			4.8	
PROJECTIONS																					
1982/83	845	4 920	52.4	186	1 190	12.7	317	2 290	24.4	65	325	3.5				122	655	7.0	1 535	9 380	100.0
83/84	906	5 270	51.4	190	1 280	12.5	373	2 500	24.4	95	460	4.5				138	740	7.2	1 702	10 250	100.0
84/85	943	5 680	50.9	196	1 390	12.5	385	2 700	24.2	105	575	5.1				170	815	7.3	1 799	11 160	100.0
85/86	969	5 940	50.3	198	1 450	12.3	400	2 900	24.6	115	660	5.6				177	850	7.2	1 859	11 800	100.0
86/87	981	6 140	47.8	203	1 480	11.5	410	3 070	23.9	130	735	5.7	100	530	4.1	185	900	7.0	2 009	12 855	100.0
1987/88	984	6 340	46.1	207	1 510	11.0	425	3 260	23.7	145	840	6.1	117	820	6.0	192	970	7.1	2 070	13 740	100.0
88/89	1 010	6 590	46.0	207	1 530	10.7	432	3 310	23.1	160	920	6.4	133	970	6.8	193	1 000	7.0	2 135	14 320	100.0
89/90	1 054	6 890	45.9	207	1 550	10.3	437	3 360	22.4	175	1 010	6.7	160	1 150	7.7	196	1 050	7.0	2 229	15 010	100.0
90/91	1 098	7 190	45.0	207	1 560	9.8	475	3 640	22.8	195	1 140	7.1	175	1 320	8.3	210	1 110	7.0	2 360	15 960	100.0
91/92	1 139	7 490	44.8	207	1 560	9.3	482	3 690	22.1	210	1 220	7.3	221	1 620	9.7	211	1 145	6.8	2 470	16 725	100.0
1992/93	1 183	7 790	45.1	207	1 560	9.0	482	3 690	21.3	225	1 300	7.5	234	1 780	10.3	213	1 175	6.8	2 544	17 295	100.0
2002/03		9 940	40.4		1 560	6.3		4 190	17.0		1 800	7.3		2 920	11.9		4 210[c]	17.1		24 620	100.0
Av.Ann.Grwth. 11 Yrs. 81/82-92/93		5.1			2.1			3.1			13.4			-			5.7			5.8	
10 Yrs. 92/93-02/03		2.5			-			1.3			3.3			5.1			13.6			3.6	

Notes:
[a] Bulk sales in 1975/76 abnormally depressed by approximately 1400 GW.h as a direct result of 3 months pulp and paper strike.
[b] Bulk sales in 1981/82 abnormally depressed by approximately 900 GW.h as a direct result of 1.5 months pulp and paper strike.
[c] After 1992/93 Other contains provision for anticipated 'new' load e.g. rail electrification, provision for commercial vehicle electrification, pumping for coal slurry pipeline, unspecified major project.

10 September 1982

PART SIX

ELECTRIC-PROBABLE TOTAL SALES

		Page
6.1 Introduction		110
6.2 Other Sales		110
6.3 WKP&L Requirements		111
TABLE 6-1	Estimated Requirements for WKP&L	112
6.4 Total Sales		113
TABLE 6-2	Probable Projection of Electric Power Sales	114
TABLE 6-3	Historic and Probable Projections of Electric Energy Sales and Average Customers - Total All Divisions	115

PART SIX

ELECTRIC-PROBABLE TOTAL SALES

6.1 Introduction

Total B. C. Hydro electric energy sales are the sum of Residential (Part Three), General (Part Four), Bulk (Part Five), Other and WKP&L requirements.

6.2 Other Sales

The other sales generally encompass the remaining small percentage (just over 2% in 1981/82) represented by rate categories not contained in the residential, general and bulk categories. The loads and their forecast methodology follow.

6.2.1 Irrigation

Irrigation is estimated to increase electric energy requirements from 41 GW.h in 1981/82 to 77 GW.h in 1992/93 as a result of continued expansion of irrigation, mainly in the South Interior Division.

6.2.2 Street Lighting

Street Lighting is estimated to increase electric energy requirements from 224 GW.h in 1981/82 to 302 GW.h in 1992/93. This moderate growth results from greater use of High Pressure Sodium (HPS) lights which significantly reduce the electric energy requirements to achieve the same lumination as mercury vapour lights.

6.2.3 Inter-utility

Inter-utility sales (not including WKP&L) are mainly to New Westminster and are estimated by B. C. Hydro to increase from 232 GW.h in 1981/82 to 359 GW.h in 1992/93 reflecting the same growth rate as B. C. Hydro residential, general and bulk loads. This allows for continued redevelopment in New Westminster.

6.2.4 Firm Export

Firm exports to Point Roberts, Washington and Hyder, Alaska are estimated by B. C. Hydro to increase from 13 GW.h in 1981/82 to 24 GW.h in 1992/93.

6.2.5 B. C. Hydro Own Use

Own use is estimated to increase from 98 GW.h in 1981/82 to 125 GW.h in 1992/93. This moderate growth is a result of B. C. Hydro's continuing programs of consolidation and conservation.

6.3 West Kootenay Power and Light (WKP&L) Requirements

The WKP&L electric energy requirements increase from 14 GW.h in 1981/82 to 1 870 GW.h in 1992/93. The forecast results from discussions between WKP&L and B. C. Hydro. It reflects the commitment by B. C. Hydro to supply WKP&L under the Kootenay Canal Agreement, and results in B. C. Hydro supplying WKP&L's new loads. A large increase in these requirements occurs in 1991/92 when Cominco's obligation to supply 650 GW.h to WKP&L terminates. Discussions with Cominco indicate an internal use for this electricity is under consideration (see Section 5.4.2), consequently, B. C. Hydro is forecast to supply this electric energy diverted from WKP&L to internal Cominco use.

Details of WKP&L requirements and generation required by B. C. Hydro to meet these requirements are shown on TABLE 6-1.

TABLE 6-1

ESTIMATED ANNUAL ELECTRIC LOAD REQUIREMENTS FOR WEST KOOTENAY POWER AND LIGHT CO. LTD. UTILITY SYSTEM TO BE MET BY B. C. HYDRO

(Probable Basis)

Fiscal Year	WKP&L Co. Ltd. Requirements		B. C. Hydro generation required to meet requirements (Undiversified Peak) (rounded)	
	Peak MW	Energy GW.h	Peak MW	Energy GW.h
1982/83	110	80	120	85
1983/84	165	120	180	130
1984/85	215	250	235	270
1985/86	280	500	305	545
1986/87	330	790	360	860
1987/88	360	900	390	980
1988/89	400	1 020	435	1 110
1989/90	420	1 140	455	1 240
1990/91	450	1 230	490	1 340
1991/92	555	1 770	605	1 925
1992/93	580	1 870	630	2 030
1993/94	595	1 960	645	2 130
1994/95	620	2 060	675	2 240
1995/96	640	2 160	695	2 350
1996/97	665	2 260	725	2 460
1997/98	695	2 390	755	2 600
1998/99	725	2 500	790	2 720
1999/2000	740	2 580	805	2 810
2000/01	765	2 700	830	2 940
2001/02	795	2 810	865	3 060
2002/03	825	2 940	900	3 200

These estimated probable requirements based on estimates provided by WKP&L.

These estimated probable requirements were held at the same values for B. C. Hydro's high load projections and were reduced by 500 GW.h starting 1991/92 for the low projection.

B. C. Government Order from the Minister of Energy, Mines and Petroleum Resources dated 28 July 1982 directed Cominco Ltd. to provide 75 average annual megawatts of energy to West Kootenay Power and Light Co. Ltd. through 31 December 1990. The substantial increase in energy and peak requirements shown in 1991/92 above, is the replacement of this energy from Cominco with energy from B. C. Hydro. It is assumed this 'additional' energy available to Cominco will be utilized in expansion of their operations.

6.4 Total Sales

TABLE 6-2 provides details of the electric forecast to 1992/93 for accounts, average use per account and electric energy sales by category. Note: WKP&L sales are included in inter-utility on this table.

TABLE 6-3 shows historical and forecast sales, average customers and categorical percentage of sales over a 20 year period.

B.C.Hydro

PROBABLE PROJECTION OF ELECTRIC POWER SALES

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

Division Total Hydro
Location All Divisions
Type Probable
Date 10 September 1982

DESCRIPTION	FISCAL YEARS											
	ACTUAL	PROJECTION										
	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
RESIDENTIAL												
1. **NON-HEATING**												
ACCOUNTS AT YEAR END	804 259	813 400	825 600	838 600	853 300	871 580	890 100	909 100	928 400	948 600	969 200	989 800
AVERAGE ACCOUNTS FOR YEAR	797 660	808 850	819 550	832 200	846 000	862 500	880 800	899 700	918 900	938 600	959 100	979 700
ANNUAL USE PER ACCOUNT — KWH	8 129	8 160	8 185	8 190	8 195	8 165	8 135	8 105	8 090	8 065	8 045	8 025
SALES — GWH	6 483.8	6 601	6 706	6 817	6 934	7 042	7 167	7 294	7 435	7 572	7 715	7 863
2. **HEATING**												
ACCOUNTS AT YEAR END	139 328	150 900	163 500	177 700	192 000	203 800	215 900	227 900	239 600	251 400	263 800	276 200
AVERAGE ACCOUNTS FOR YEAR	132 110	145 070	157 250	170 700	185 000	197 900	210 000	221 900	233 800	245 400	257 600	270 000
ANNUAL USE PER ACCOUNT — KWH	16 320	16 125	15 910	15 705	15 520	15 305	15 095	14 910	14 760	14 620	14 475	14 340
SALES — GWH	2 156.1	2 339	2 502	2 681	2 871	3 029	3 170	3 308	3 451	3 588	3 729	3 872
TOTAL RESIDENTIAL												
ACCOUNTS AT YEAR END	943 587	964 300	989 100	1 016 300	1 045 300	1 075 300	1 106 000	1 137 000	1 168 000	1 200 000	1 233 000	1 266 000
AVERAGE ACCOUNTS FOR YEAR	929 770	953 920	976 800	1 002 900	1 031 000	1 060 400	1 090 800	1 121 600	1 152 700	1 184 000	1 216 700	1 249 700
ANNUAL USE PER ACCOUNT — KWH	9 292	9 37	9 425	9 470	9 510	9 495	9 475	9 455	9 445	9 425	9 405	9 390
SALES — GWH	8 639.9	8 940	9 208	9 498	9 805	10 071	10 337	10 602	10 886	11 160	11 444	11 735
GENERAL												
1. **GENERAL — UNDER 35 KW**												
ACCOUNTS AT YEAR END	117 281	118 500	120 000	121 700	123 600	125 500	127 450	129 400	131 400	133 450	135 500	137 500
AVERAGE ACCOUNTS FOR YEAR	116 397	117 890	119 250	120 850	122 650	124 550	126 475	128 425	130 400	132 425	134 475	136 500
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	2 328.7	2 328	2 376	2 428	2 493	2 552	2 609	2 672	2 732	2 795	2 865	2 937
2. **GENERAL — 35 KW AND OVER**												
ACCOUNTS AT YEAR END	13 537	14 000	14 600	15 400	16 250	17 100	18 000	18 900	19 800	20 700	21 600	22 500
AVERAGE ACCOUNTS FOR YEAR	12 894	13 765	14 300	15 000	15 825	16 675	17 550	18 450	19 350	20 250	21 150	22 050
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	7 377.7	7 355	7 666	8 045	8 328	8 634	8 930	9 238	9 564	9 904	10 261	10 603
TOTAL GENERAL												
ACCOUNTS AT YEAR END	130 818	132 500	134 600	137 100	139 850	142 600	145 450	148 300	151 200	154 150	157 100	160 000
AVERAGE ACCOUNTS FOR YEAR	129 291	131 655	133 550	135 850	138 475	141 225	144 025	146 875	149 750	152 675	155 625	158 550
SALES — GWH	9 706.4	9 683	10 042	10 473	10 821	11 186	11 539	11 910	12 296	12 699	13 126	13 540
IRRIGATION												
ACCOUNTS AT YEAR END	2 179	2 245	2 330	2 418	2 512	2 602	2 689	2 779	2 872	2 968	3 066	3 170
AVERAGE ACCOUNTS FOR YEAR	2 112	2 203	2 280	2 367	2 458	2 548	2 639	2 735	2 827	2 921	3 018	3 119
SALES — GWH	41.3	46	49	51	53	56	59	62	65	69	73	77
STREET LIGHTING												
SALES — GWH	224.5	229	235	241	247	254	262	270	278	286	294	302
BULK POWER a												
ACCOUNTS AT YEAR END	62	71	74	75	76	79	80	81	83	86	88	88
AVERAGE ACCOUNTS FOR YEAR	62	71	74	75	76	79	80	81	83	86	88	88
SALES — GWH	9 338.9	9 380	10 250	11 160	11 800	12 855	13 740	14 320	15 010	15 960	16 725	17 295
INTER-UTILITY b												
ACCOUNTS AT YEAR END	8	8	8	8	8	8	9	9	9	9	9	9
AVERAGE ACCOUNTS FOR YEAR	8	8	8	8	8	8	9	9	9	9	9	9
SALES — GWH	246.4	317	367	508	770	1 073	1 195	1 327	1 459	1 562	2 115	2 229
EXPORT TO U.S.A.												
ACCOUNTS AT YEAR END	2	2	2	2	2	2	2	2	2	2	2	2
AVERAGE ACCOUNTS FOR YEAR	2	2	2	2	2	2	2	2	2	2	2	2
SALES — GWH	12.8	13	14	15	16	17	18	19	20	21	22	24
B.C. HYDRO USE												
ACCOUNTS AT YEAR END	1 006	971	971	970	976	985	995	1 004	1 011	1 021	1 029	1 039
AVERAGE ACCOUNTS FOR YEAR	1 000	976	965	965	969	978	988	1 001	1 009	1 018	1 026	1 036
SALES — GWH	97.8	98	101	103	105	107	110	113	116	119	122	125
TOTAL FORECAST SALES												
ACCOUNTS AT YEAR END	1 077 662	1 100 097	1 127 085	1 156 873	1 188 724	1 221 576	1 255 225	1 289 175	1 323 177	1 358 236	1 394 294	1 430 308
AVERAGE ACCOUNTS FOR YEAR	1 062 245	1 088 835	1 113 679	1 142 167	1 172 988	1 205 240	1 238 543	1 272 303	1 306 380	1 340 711	1 376 468	1 412 504
SALES — GWH	28 308.0	28 706	30 266	32 049	33 617	35 619	37 260	38 623	40 130	41 876	43 921	45 327

a Includes Cominco requirements
b Includes West Kootenay Power and Light Co. Requirements

TABLE 6-3

ALL DIVISIONS

B. C. HYDRO
HISTORIC AND PROBABLE PROJECTIONS
ELECTRIC ENERGY SALES AND AVERAGE NUMBER OF CUSTOMERS
TOTAL ALL DIVISIONS[a]

FISCAL YEARS	RESIDENTIAL			GENERAL - UNDER 35 KW			GENERAL - 35 KW & OVER			BULK (1800 SERIES)[b]			OTHER[c][d]			TOTAL SALES		
	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.
	GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total	
HISTORIC																		
1971/72	4 465	27.6	612 893	1 408	8.7	87 338	3 855	23.8	6 270	5 860	36.2	43	600[e]	3.7	1 865	16 188	100.0	708 409
1972/73	4 739	26.5	649 016	1 546	8.6	91 645	4 113	23.0	6 116	7 066	39.4	45	453	2.5	1 949	17 917	100.0	748 771
1973/74	5 176	26.1	683 767	1 706	8.6	95 614	4 672	23.6	6 025	7 776	39.3	46	470	2.4	2 045	19 800	100.0	787 497
1974/75	5 685	27.6	717 485	1 844	9.0	99 380	4 841	23.5	6 452	7 714	37.5	46	495	2.4	2 252	20 579	100.0	825 615
1975/76	6 258	30.3	746 815	1 985	9.6	103 938	5 077	24.6	6 990	6 808	32.9	47	532	2.6	2 424	20 660	100.0	860 214
1976/77	6 625	28.9	782 678	2 021	8.8	108 598	5 571	24.3	7 808	8 166	35.6	47	541	2.4	2 555	22 924	100.0	901 686
1977/78	7 051	29.2	815 263	2 101	8.7	110 243	5 972	24.7	8 654	8 479	35.1	48	561	2.3	2 668	24 164	100.0	936 876
1978/79	7 492	29.1	847 394	2 159	8.4	112 384	6 353	24.7	9 442	9 133	35.5	52	583	2.3	2 789	25 720	100.0	972 061
1979/80	7 727	29.1	871 021	2 213	8.3	113 792	6 736	25.4	10 436	9 217	34.8	55	625	2.4	2 841	26 518	100.0	998 145
1980/81	8 042	29.2	900 011	2 226	8.1	115 089	7 118	25.8	11 822	9 597	34.8	59	581	2.1	2 994	27 564	100.0	1 029 975
1981/82	8 640	30.5	929 770	2 328	8.2	116 397	7 378	26.1	12 894	9 339	33.0	62	623	2.2	3 122	28 308	100.0	1 062 245
Av. Annual Growth-% 10 Years: 71/72-81/82	6.8		4.3	5.2		2.9	6.7		7.5	4.8		3.7	0.4		5.3	5.7		4.1
PROJECTIONS																		
1982/83	8 940	31.1	953 920	2 328	8.1	117 890	7 355	25.6	13 765	9 380	32.7	71	703	2.5	3 189	28 706	100.0	1 088 835
1983/84	9 208	30.4	976 800	2 376	7.9	119 250	7 666	25.3	14 300	10 250	33.9	74	766	2.5	3 255	30 266	100.0	1 113 679
1984/85	9 498	29.6	1 002 900	2 428	7.6	120 850	8 045	25.1	15 000	11 160	34.8	75	918	2.9	3 342	32 049	100.0	1 142 167
1985/86	9 805	29.2	1 031 000	2 493	7.4	122 650	8 328	24.8	15 825	11 800	35.1	76	1 191	3.5	3 437	33 617	100.0	1 172 988
1986/87	10 071	28.3	1 060 400	2 552	7.2	124 550	8 634	24.2	16 675	12 855	36.1	79	1 507	4.2	3 536	35 619	100.0	1 205 240
1987/88	10 337	27.7	1 090 800	2 609	7.0	126 475	8 930	24.0	17 550	13 740	36.9	80	1 644	4.4	3 638	37 260	100.0	1 238 543
1988/89	10 602	27.5	1 121 600	2 672	6.9	128 425	9 238	23.9	18 450	14 320	37.1	81	1 791	4.6	3 747	38 623	100.0	1 272 303
1989/90	10 886	27.1	1 152 700	2 732	6.8	130 400	9 564	23.9	19 350	15 010	37.4	83	1 938	4.8	3 847	40 130	100.0	1 306 380
1990/91	11 160	26.6	1 184 000	2 795	6.7	132 425	9 904	23.7	20 250	15 960	38.1	86	2 057	4.9	3 950	41 876	100.0	1 340 711
1991/92	11 444	26.0	1 216 700	2 865	6.5	134 475	10 261	23.4	21 150	16 725	38.1	88	2 626	6.0	4 055	43 921	100.0	1 376 468
1992/93	11 735	25.9	1 249 700	2 937	6.5	136 500	10 603	23.4	22 050	17 295	38.1	88	2 757	6.1	4 166	45 327	100.0	1 412 504
Av. Annual Growth-% 11 Years: 81/82-92/93	2.8		2.7	2.1		1.5	3.4		5.0	5.8		3.2	14.5		2.7	4.4		2.6

NOTES:

[a] DC Power to Transit and Hydro Use for transit buildings are included in "Other" to 1979/80. As of 1 April 1980 these sales are included in "General - 35 kW and Over" and "General - Under 35 kW".

[b] Includes sales requirements of Cominco Ltd. starting 1986/87 (see South Interior Division for detail).

[c] Includes sales requirements of West Kootenay Power & Light Co. Ltd. utility system starting 1981/82.

[d] Other - includes Irrigation, Street Lighting, Inter-Utility, Export and B. C. Hydro use.

[e] Includes 172.9 GW.h sale of surplus thermal energy to USBR under EL 48 in 1971/72 only.

GW.h: gigawatt hour = 1 million kilowatt hours.

10 September 1982

PART SEVEN

ELECTRIC-PROBABLE ENERGY REQUIREMENTS FOR SYSTEM PLANNING

			Page
7.1	Present Electric System		117
	Figure 7-1	B. C. Hydro Divisional Map	118
7.2	Electric System Planning		117
7.3	Comparison of Actual Energy Requirements with Forecasts		120
	TABLE 7-1	Historic and Probable Projections of Electric Power Requirements by Sales Categories.	122
	TABLE 7-2	Probable Projections of Gross Electric Power Requirements.	123
	TABLE 7-3	Projections of Electric Gross Load Requirements - Integrated System	125
	TABLE 7-4	Comparison of Actual Energy Requirements with Probable Forecast of Total Gross Requirements.	126

PART SEVEN

ELECTRIC-PROBABLE ELECTRIC REQUIREMENTS FOR SYSTEM PLANNING

7.1 Present Electric System

B. C. Hydro is presently providing electricity to 1 103 000 customers in British Columbia. These customers encompass approximately 93% of the population of the Province with the remaining 7% served by the West Kootenay Power and Light Co. Ltd and the City of Nelson.

Ninety-nine and a half percent (99.5%) of the total B. C. Hydro load is in the integrated system. The remainder of the load is in several non-integrated areas largely served by diesel generating stations.

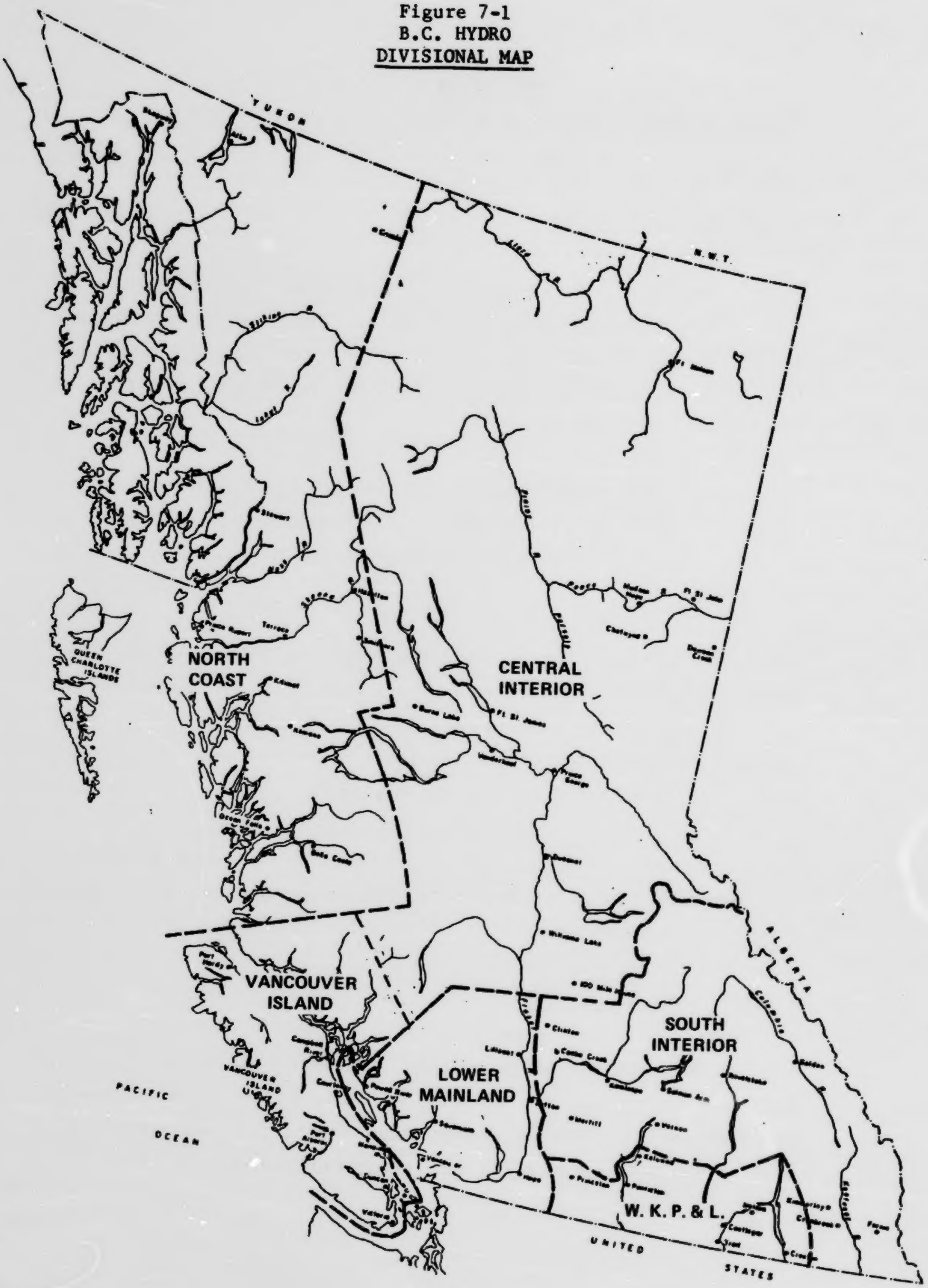
The B. C. Hydro system is separated into five (5) divisions; Lower Mainland, Central Interior, North Coast, South Interior and Vancouver Island. See Figure 7-1. The divisions in turn are separated into a total of 58 districts. Further, some of the major districts are broken down into sub-districts.

Sixty-four (64) of B. C. Hydro's customers are large industrial bulk loads served at transmission voltage and accounting for about one third of total sales.

7.2 Electric System Planning

For system planning of generation, transmission and distribution facilities, the forecast of total electric energy sales is used to calculate gross electric energy requirements and peak demand for B. C. Hydro's integrated and non-integrated systems.

Figure 7-1
B.C. HYDRO
DIVISIONAL MAP


YUKON
N.W.T.
CENTRAL INTERIOR
NORTH COAST
QUEEN CHARLOTTE ISLANDS
VANCOUVER ISLAND
LOWER MAINLAND
SOUTH INTERIOR
W.K.P. & L.
ALBERTA
PACIFIC OCEAN
UNITED STATES

For the integrated system, gross electric energy requirements, stated in GW.h, and peak demand, stated in MW, are derived as follows:

- distribution losses are added to area-specific, non-bulk sales to obtain gross electric energy requirements at particular distribution voltages;
- an annual load factor, based on historical experience, is applied to the non-bulk gross electric energy requirements at distribution voltages to obtain peak demand estimates;
- peak demands are generally at the District level at this stage. These peaks are used as the basis for distribution system planning. See Appendix H for details and projections.
- the gross electric energy requirements and peak demands for non-bulk sales at distribution voltages are summed to higher system voltage levels (i.e. larger geographic areas). These estimates are combined with the electric energy requirements and peak demands projected for bulk sectors (i.e. Pulp and Paper). Transmission losses are applied to derive total gross electric energy requirements sent out from generating stations. A diversity factor, based on historical data, is applied to the peak demands in the distribution and transmission systems to estimate a peak demand at generating stations;
- total gross electric energy requirements and peak demands are separately developed for B. C. Hydro's Mainland area and Vancouver Island Division. The total integrated system peak is the sum of these two areas; and
- WKP&L requirements are treated as a 'Division' incorporated into the Mainland area.

For the non-integrated areas the first two steps noted above are used to determine projections for the individual stations.

The projected annual peak loads for the integrated system and non-integrated areas are based on normal winter temperatures. For the integrated system, this is based on an approximate mean temperature of -7 degrees C. at the Vancouver International Airport occurring on a Monday, Tuesday or Wednesday in the two weeks immediately before Christmas or early in the New Year. Cold weather allowance factors are specified (TABLE 7-2) for the two main components (Mainland and Vancouver Island) of the integrated system and each non-integrated area to indicate a range by which the normal temperature peaks may be exceeded in perhaps one year in ten. These are to be used as guides by Engineering and Operations as they consider necessary.

TABLE 7-1 shows, using a category buildup, historical and forecast electric energy requirements over a 32-year period (11 years history and 21 years projected) for total B. C. Hydro.

Details to 1987/88 of Probable Projections of Gross Electric Power Requirements for both the integrated and non-integrated areas are shown on TABLE 7-2.

Extended projections for the integrated system are shown on TABLE 7-3.

7.3 Comparison of Actual Energy Requirements with Forecasts

Refer to TABLE 7-4. The table shows the deviation in percent that resulted when comparing the actual load that materialized to the probable load projected a number of years before. For example, the probable projection made in 1972 for five years out, i.e. 1976/77, turned out to be 11.3% high. Some clarifying points re the table:

- a negative sign indicates the forecast turned out to be low.

- from 1966 through 1968, only a 5-year plus base year forecast was made.

- from 1970 through 1975 only a single load projection was made. It was a probable forecast for the first five years but trended to a high forecast through the second five years. This has the effect of distorting the deviation the further out the comparison to actual is made.

B. C. HYDRO

HISTORIC AND PROBABLE PROJECTIONS OF ELECTRIC POWER REQUIREMENTS BY SALES CATEGORIES

TABLE 7-1

FISCAL YEAR	Residential		Total General		Other		WKP&L Co. Ltd. Load Requirements		Total Sales Less Bulk		Bulk Sales		Total Billed Sales		Losses & Accruals		Total Gross Requirements (Including WKP&L Co. Ltd. & Cominco Requirements) Energy		Peak	
	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	% of Total Sales	GW.h	Annual % Growth	MW[a]	Annual % Growth
1971/72	4 465	10.4	5 263	13.9	600[b]	43.2			10 328	13.7	5 860	11.0	16 188	12.7	1 742	10.8	17 930	11.3	3 130	5.3
72/73	4 739	6.1	5 659	7.5	453	-24.5			10 851	5.1	7 066	20.6	17 917	10.7	2 432	13.6	20 349	13.5	3 653	16.7
73/74	5 176	9.2	6 378	12.7	470	3.8			12 024	10.8	7 776	10.0	19 800	10.5	2 656	13.4	22 456	10.4	3 739	2.4
74/75	5 685	9.8	6 685	4.8	495	5.3			12 865	7.0	7 714	-0.8	20 579	3.9	2 815	13.7	23 394	4.2	3 957	5.8
75/76	6 258	10.1	7 062	5.6	532	7.5			13 852	7.7	6 808[c]	-11.7	20 660	0.4	2 878	13.9	23 538	0.6	4 232	6.9
1976/77	6 625	5.9	7 592	7.5	541	1.7			14 758	6.5	8 166	19.9	22 924	11.0	3 072	13.4	25 996	10.4	4 421	4.5
77/78	7 051	6.4	8 073	6.3	561	3.7			15 685	6.3	8 479	3.8	24 164	5.4	3 372	14.0	27 536	5.9	4 800	8.6
78/79	7 492	6.3	8 512	5.4	583	3.9			16 587	5.8	9 133	7.7	25 720	6.4	3 628	14.1	29 348	6.6	5 122	6.7
79/80	7 727	3.1	8 949	5.1	625	7.2			17 301	4.3	9 217	0.9	26 518	3.1	3 455	13.0	29 973	2.1	5 231	2.1
80/81	8 042	4.1	9 344	4.4	581	-7.0			17 967	3.8	9 597	4.1	27 564	3.9	3 594	13.0	31 158	4.0	5 511	5.4
1981/82	8 640	7.4	9 706	3.9	609	4.8	14	-	18 969	5.6	9 339[d]	-2.7	28 308	2.7	4 051	14.3	32 359	3.9	5 939	7.8
Av. Annual Growth % 10 Yrs. 71/72-81/82	6.8		6.3		-		-		6.3		4.8		5.7				6.1		6.6	
PROJECTIONS																				
1982/83	8 940	3.5	9 683	-0.2	623	2.3	80	-	19 326	1.9	9 380	0.4	28 706	1.4	3 864	13.5	32 570	0.7	6 070	2.2
83/84	9 208	3.0	10 042	3.7	646	3.7	120	50.0	20 016	3.6	10 250	9.3	30 266	5.4	4 054	13.4	34 320	5.4	6 470	6.6
84/85	9 498	3.1	10 473	4.3	668	3.4	250	108.3	20 889	4.4	11 160	8.9	32 049	5.9	4 261	13.3	36 310	5.8	6 800	5.1
85/86	9 805	3.2	10 821	3.3	691	3.4	500	100.0	21 817	4.4	11 800	5.7	33 617	4.9	4 443	13.2	38 060	4.8	7 070	4.0
86/87	10 071	2.7	11 186	3.4	717	3.8	790	58.0	22 764	4.3	12 855	8.9	35 619	6.0	4 671	13.1	40 290	5.9	7 420	5.0
1987/88	10 337	2.6	11 539	3.2	744	3.8	900	13.9	23 520	3.3	13 740	6.9	37 260	4.6	4 860	13.0	42 120	4.5	7 660	3.2
88/89	10 602	2.6	11 910	3.2	771	3.6	1 020	13.3	24 303	3.3	14 320	4.2	38 623	3.7	5 027	13.0	43 650	3.6	7 930	3.5
89/90	10 886	2.7	12 296	3.2	798	3.5	1 140	11.8	25 120	3.4	15 010	4.8	40 130	3.9	5 210	13.0	45 340	3.9	8 190	3.3
90/91	11 160	2.5	12 699	3.3	827	3.6	1 230	7.9	25 916	3.2	15 960	6.3	41 876	4.4	5 414	12.9	47 290	4.3	8 490	3.7
91/92	11 444	2.5	13 126	3.4	856	3.5	1 770	43.9	27 196	4.9	16 725	4.8	43 921	4.9	5 649	12.9	49 570	4.8	8 880	4.6
1992/93	11 735	2.5	13 540	3.2	887	3.6	1 870	5.6	28 032	3.1	17 295	3.4	45 327	3.2	5 823	12.8	51 150	3.2	9 150	3.0
1993/94	12 014		13 963		915		1 960		28 852		18 030		46 882		6 018		52 900		9 400	
94/95	12 362		14 403		941		2 060		29 766		18 760		48 526		6 174		54 700		9 800	
95/96	12 724		14 855		969		2 160		30 708		19 490		50 198		6 402		56 600		10 100	
96/97	13 087		15 321		996		2 260		31 664		20 220		51 884		6 616		58 500		10 400	
97/98	13 464		15 801		1 023		2 390		32 678		20 950		53 628		6 872		60 500		10 800	
1998/99	13 855		16 295		1 050		2 500		33 700		21 690		55 390		7 110		62 500		11 200	
99/00	14 244		16 807		1 078		2 580		34 709		22 420		57 129		7 371		64 500		11 500	
2000/01	14 557		17 336		1 105		2 700		35 698		23 150		58 848		7 552		66 400		11 800	
01/02	14 885		17 881		1 132		2 810		36 708		23 890		60 598		7 802		68 400		12 200	
02/03	15 231		18 445		1 162		2 940		37 778		24 620		62 398		8 002		70 400		12 500	
Av. Annual Growth % 11 Yrs. 81/82-92/93	2.8		3.1		3.5		-		3.6		5.8		4.4				4.3		4.0	
10 Yrs. 92/93-02/03	2.6		3.1		2.7		4.6		3.0		3.6		3.2				3.2		3.2	
21 Yrs. 81/82-02/03	2.7		3.1		3.1		-		3.3		4.7		3.8				3.8		3.6	

NOTES:

[a] Projected peak loads are based on normal weather conditions.
[b] Includes 172.9 GW.h sales of surplus thermal energy to USBR under EL 48 in 1971/72 only.
[c] Bulk sales in 1975/76 abnormally depressed by approximately 1 400 GW.h as a direct result of 3 months pulp and paper strike.
[d] Bulk sales in 1981/82 abnormally depressed by approximately 900 GW.h as a direct result of 1.5 months pulp and paper strike.

10 September 1982

TABLE 7-2

B. C. HYDRO
PROBABLE PROJECTIONS OF GROSS ELECTRIC POWER REQUIREMENTS
FISCAL YEARS - APRIL TO MARCH - 1982/83 - 1987/88
BASED ON NORMAL WINTER TEMPERATURES
(a)

(includes all losses)

	COMPONENT SYSTEMS	1981/82 ACTUAL		1982/83		1983/84		1984/85		1985/86		1986/87		1987/88		For Cold[c] Weather Increase Annual Peaks by (Prob: 1 Year in 10)	Av. Annual Growth % 6 Years 81/82 - 87/88 Normal Weather	
		Peak MW	Energy GW.h	Peak MW	Energy GW.h	Peak MW	Energy GW.h	Peak MW	Energy GW.h	Peak MW	Energy GW.h	Peak MW	Energy GW.h	Peak MW	Energy GW.h		Peak MW	Energy
	INTEGRATED SYSTEM																	
1.	Mainland[b]	4 561.00[d]	25 175.52[a]	4 665	25 020	4 990	26 630	5 255	28 180	5 470	29 600	5 795	31 640	6 005	33 230	6%	4.7	4.7
2.	Vancouver Island[h]	1 341.00	7 010.34[a]	1 375	7 380	1 440	7 520	1 505	7 950	1 560	8 275	1 585	8 460	1 615	8 690	6%	3.1	3.6
3.	**TOTAL INTEGRATED SYSTEM**	5 902.00[e]	32 185.86[a]	6 040	32 400	6 430	34 150	6 760	36 130	7 030	37 875	7 380	40 100	7 620	41 920	6%	4.4	4.5
	NON-INTEGRATED AREAS																	
	Mainland:																	
4.	Lardeau (Purchase)	.91	4.11	.95	4.25	.98	4.35	1.01	4.50	1.03	4.65	1.06	4.80	1.09	5.00	5%	3.1	3.3
5.	Keenleyside Dam (Purchase)	-	1.47	-	1.50	-	1.50	-	1.50	-	1.50	-	1.50	-	1.50	-	-	0.3
6.	Kingsgate-Yahk (Purchase)	.55	2.27	.62	2.50	.65	2.60	.68	2.70	.72	2.80	.75	2.90	.79	3.10	5%	6.2	5.3
7.	Newgate (Purchase)	.03	.17	.03	.19	.03	.19	.03	.19	.03	.21	.03	.21	.03	.23	5%	-	5.2
8.	Crowsnest (Purchase)	-	.25	-	.26	-	.26	-	.27	-	.28	-	.28	-	.30	-	-	3.1
9.	Kelly Lake (Purchase)	-	.18	-	.20	-	.20	-	.20	-	.21	-	.21	-	.22	-	-	3.4
10.	McBride	3.99	15.85	-	7.00	Included in Mainland Integrated System, 1 October 1982										-	-	-
11.	Fort Nelson	13.65	64.35	12.00	65.90	13.20	71.00	14.20	77.00	15.10	80.45	16.10	82.90	17.30	87.95	4%	4.0	5.3
12.	Atlin	.58	2.38	.62	2.60	.67	2.70	.74	3.00	.79	3.20	.86	3.40	.92	3.70	10%	8.0	7.6
13.	Stewart	2.99	12.83	3.16	13.90	3.31	14.40	3.42	15.00	3.53	15.50	3.63	15.90	3.74	16.50	8%	3.8	4.3
14.	Dease Lake	.66	2.80	.77	3.25	.86	3.60	.93	3.95	1.00	4.30	1.06	4.45	1.12	4.70	10%	9.2	9.0
15.	Eddontenajon	.29	.97	.30	1.05	.31	1.05	.32	1.10	.33	1.15	.34	1.20	.35	1.30	10%	3.2	5.0
16.	Telegraph Creek	.28	1.02	.29	1.05	.30	1.10	.32	1.15	.33	1.20	.34	1.25	.35	1.30	10%	3.8	4.1
17.	QC-Masset/Pt. Clements	3.65	18.36	3.76	19.10	3.90	19.45	4.07	20.50	4.19	21.50	4.31	21.90	4.44	23.00	5%	3.3	3.8
18.	QC-Sandspit	3.86	17.56	4.40	18.50	4.56	18.95	4.73	19.50	4.90	20.00	5.08	20.40	5.27	21.20	5%	5.3	3.2
19.	Bella Bella	1.85	7.57	2.02	8.00	2.08	8.10	2.14	8.30	2.20	8.50	2.27	8.60	2.33	9.00	5%	3.9	2.9
20.	Bella Coola	2.50	11.11	2.54	11.40	2.63	11.70	2.72	12.10	2.80	12.50	2.90	12.80	3.00	13.40	10%	3.1	3.2
21.	Anahim Lake	.56	2.26	.65	2.40	.67	2.45	.69	2.50	.72	2.60	.75	2.75	.78	2.90	10%	5.7	4.2
22.	Tatla Lake	.26	.95	.26	1.00	.27	1.00	.28	1.04	.29	1.10	.30	1.15	.30	1.20	10%	2.4	4.0
	Vancouver Island:																	
23.	Zeballos	.44	2.01	.47	2.10	.48	2.15	.49	2.20	Included in V.I. Integrated System 1 April 1985						5%	-	-
24.	Bamfield	.70	3.17	.69	3.20	.70	3.25	.71	3.30	.73	3.35	.76	3.40	.78	3.50	5%	1.8	1.7
25.	Ahousat	.30	1.31	-	.65	Included in Vancouver Island Integrated System, 1 October 1982										-	-	-
26.	**TOTAL NON-INTEGRATED AREAS[g]**	38.05	172.95	33.5	170.0	35.6	170.0	37.5	180.0	38.7	185.0	40.5	190.0	42.6	200.0	-	1.9	2.5
27.	**TOTAL B. C. HYDRO[g]**	5 939[f]	32 358.81[a]	6 070	32 570	6 470	34 320	6 800	36 310	7 070	38 060	7 420	40 290	7 660	42 120	-	4.3	4.5

10 September 1982

TABLE 7-2

Footnotes on following page.

MST175

NOTES FOR TABLE 7-2

[a] Thermal station service amounting to 30.44 GW.h at Burrard, Port Mann, Georgia, Keogh and Prince Rupert thermal plants is included in "ACTUAL" total for fiscal year 1981/82. An allowance is included for such station service in the projections, assuming no extended operation of these plants occurs. Any extended operation would increase the requirement for station service.

[b] Mainland Integrated System projection includes WKP&L Co. Ltd. requirements. The 1981/82 actual for WKP&L Co. Ltd. was 14.24 GW.h plus losses.

[c] The annual peaks forecasts for each component system and the total B. C. Hydro are based on normal winter temperatures. Under cold weather conditions, these peaks may be exceeded by the respective percentages shown with a probability of about one year in ten. Compound growth rates would change accordingly.

[d] Includes 12 MW for WKP&L Co. Ltd. Firm Requirement at time of Mainland Integrated Peak. However, the Maximum Peak for WKP&L Co. Ltd. Requirement was 68 MW on 5 January 1982 at 1800 hours.

[e] Maximum coincident peak which occurred on Total Integrated system on 6 January 1982. Includes 12 MW for WKP&L Co. Ltd. Firm Requirement at time of Coincident System Peak.

[f] Actual individual system and district peaks shown are the maximums which occurred during fiscal year 1981/82 and do not add to actual "Total B. C. Hydro". The "Actual Total B. C. Hydro" shown is the addition of the Integrated System coincident peak of 5,902 MW (January 1982) and January 1982 non-integrated districts' peaks (37.34 rounded to 37 MW).

[g] Forecast peak totals do not add exactly because of rounding.

[h] Vancouver Island gross peak and energy requirements include losses on the AC and DC underwater cables from the Mainland to Vancouver Island.

(GW.h) gigawatt hours - 1 million kilowatt hours

TABLE 7-3

B. C. HYDRO
PROJECTIONS OF ELECTRIC GROSS LOAD REQUIREMENTS
INTEGRATED SYSTEM

	September 1982 Forecast						September 1981	
	Low		Probable		High		Probable	
Fiscal Year	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)
1980/81 (Actual)	5 475	30 996	5 475	30 996	5 475	30 996	5 475	30 996
1981/82 (Actual)	5 902	32 186	5 902	32 186	5 902	32 186	5 902	32 186
1982/83	5 890	31 600	6 040	32 400	6 130	32 900	6 290	35 975
1983/84	6 290	33 400	6 430	34 150	6 630	35 200	6 800	38 495
1984/85	6 570	35 100	6 760	36 130	7 070	37 800	7 280	41 335
1985/86	6 750	36 400	7 030	37 875	7 400	39 900	7 670	43 475
1986/87	7 010	38 100	7 380	40 100	7 820	42 500	8 030	45 935
1987/88	7 140	39 300	7 620	41 920	8 140	44 800	8 410	48 170
1988/89	7 350	40 500	7 880	43 440	8 530	47 000	8 760	50 135
1989/90	7 450	41 300	8 140	45 120	8 850	49 100	9 130	52 420
1990/91	7 650	42 700	8 440	47 060	9 270	51 700	9 520	54 505
1991/92	7 840	43 800	8 830	49 330	9 810	54 800	9 910	56 810
1992/93	7 950	44 500	9 100	50 900	10 150	56 800	10 430	59 400
11 Yr. Av. Ann. Energy Growth % (1981/82-1992/93)		3.0		4.3		5.3		5.7
1993/94	8 040	45 300	9 340	52 600	10 540	59 200	10 930	62 000
1994/95	8 240	46 200	9 740	54 400	11 040	61 900	11 420	64 500
1995/96	8 440	47 400	10 040	56 300	11 540	64 700	11 870	67 000
1996/97	8 640	48 300	10 340	58 200	12 040	67 500	12 320	69 400
1997/98	8 840	49 300	10 740	60 200	12 540	70 300	12 760	71 900
1998/99	9 040	50 300	11 140	62 200	13 140	73 200	13 210	74 400
1999/2000	9 140	51 300	11 440	64 200	13 640	76 500	13 650	76 900
2000/01	9 240	52 100	11 740	66 100	14 040	79 100	14 100	79 400
2001/02	9 440	53 200	12 140	68 100	14 640	82 300	14 590	81 900
2002/03	9 640	54 300	12 440	70 100	15 140	85 300	-	-
20 Yr. Av. Ann. Energy Growth % (1981/82-2001/02)		2.5		3.8		4.8		4.8
21 Yr. Av. Ann. Energy Growth % (1981/82-2002/03)		2.5		3.8		4.8		

TABLE 7-4

B. C. HYDRO

COMPARISON OF ACTUAL ENERGY REQUIREMENTS WITH PROBABLE FORECAST OF TOTAL GROSS REQUIREMENTS (%)**

	YEARS AFTER FORECAST										
	1	2	3	4	5	6	7	8	9	10	11
1963 (probable)	0.1	-3.5	-10.8	-17.3	-20.5	-24.8	-25.7	-28.1	-31.4	-35.6	-38.0
1964 (probable)	-1.6	-4.1	-7.6	-9.0	-14.4	-15.7	-18.1	-22.8	-27.6	-31.3	-30.3
1965 (probable)	-1.8	-4.4	-1.0	-3.6	-4.5	-6.6	-11.6	-18.5	-22.7	-22.4	-19.5
1966 (probable)	-0.1	2.7	2.0	-0.5	0.1	-5.6	N/A	N/A	N/A	N/A	N/A
1967 (probable)	0.4	0.2	1.3	-0.2	-3.8	-9.5	N/A	N/A	N/A	N/A	N/A
1968 (probable)	-1.6	-1.9	-0.4	-2.6	-8.4	-11.7	N/A	N/A	N/A	N/A	N/A
1969 (probable)	0.1	1.9	-0.9	-4.4	-9.0	-7.4	-2.8	-7.0	-7.1	-7.4	-3.0
1970 (single)	-0.8	4.2	1.8	1.3	5.6	12.1*	9.6*	11.4*	12.9*	19.6*	25.5*
1971 (single)	0.6	0.9	1.2	6.7	14.7	12.5*	15.0*	16.5*	23.8*	29.5*	35.7*
1972 (single)	-1.8	-1.4	2.8	12.1	11.1	14.4*	16.8*	23.9*	29.3*	35.6*	
1973 (single)	0.5	4.8	14.0	12.9	17.7	20.5*	29.5*	36.7*	43.5*		
1974 (single)	-0.5	5.3	5.3	12.7	16.7	25.2*	31.2*	38.9*			
1975 (single)	-0.6	2.2	5.0	9.9	18.6	26.1*	32.6*				
1976 (probable)	0.7	3.4	4.7	11.3	18.5	24.8					
1977 (probable)	0.4	-0.8	2.3	5.1	7.3						
1978 (probable)	-1.4	2.0	2.8	5.3							
1979 (probable)	1.2	3.0	7.6								
1980 (probable)	0.9	5.6									
1981 (probable)	-0.1										

* High forecast.

** Difference between forecast made 1 to 11 years prior to year indicated divided by actual. A negative sign indicates forecast is too low.

PART EIGHT

ELECTRIC ENERGY REQUIREMENTS
LOW AND HIGH PROJECTIONS

		Page
8.1 Introduction		128
Table 8-1	B. C. Pessimistic Macro Forecasts	130
Table 8-2	B. C. Optimistic Macro Forecasts	131
8.2 Basis of Low and High Forecasts		128
TABLE 8-3	Historic and Low Projections of Electric Power Requirements by Sales Categories	132
TABLE 8-4	Historic and High Projections of Electric Power Requirements by Sales Categories	133

PART EIGHT

ELECTRIC ENERGY REQUIREMENTS LOW AND HIGH PROJECTIONS

8.1 Introduction

B. C. Hydro's Corporate Economist prepared pessimistic and optimistic forecasts of economic activity in the U.S., Canada and British Columbia. Details of the assumptions for these forecasts are presented under separate cover in The Long Term Economic Outlook, 1982-2001, prepared in July, 1982. Tables 8-1 and 8-2, respectively, detail the pessismistic and optimistic economic forecasts for British Columbia.

8.2 Basis of Low and High Forecasts

The low and high forecasts of electric energy requirements are shown on TABLES 8-3 and 8-4, respectively, and are derived as follows:

- the probable residential electric energy requirements are changed by the ratio of low to probable and high to probable population estimates, and by changes in appliance use and capture rates associated with low and high economic growth forecasts;
- the probable general electric energy requirements forecast as a function of population (7% of total 1981/82 general electric energy requirements) are changed by the ratio of low to probable and high to probable population estimates;
- the probable general electric energy requirements forecast as a function of GDP (93% of total 1981/82 general electric energy requirements) are changed by the ratio of low to probable and high to probable GDP forecasts;

  - the probable bulk electric energy requirements are changed by the ratio of low to probable and high to probable GDP forecasts. The resulting trend forecast of low bulk electric energy requirements is further adjusted downward to reflect two factors:

  - the greater impact of poor economic performance on major industrial sectors could result in a further decrease of 350 GW.h in 1982/83 and 200 GW.h in 1983/84; and
  - after 1983/84, the trend forecast is reduced to account for the potential loss of unspecified electric intensive industrial projects. The reduction commences at 125 GW.h in 1984/85 and grows linearly to 1 125 GW.h in 1992/93 and 2 375 GW.h in 2002/03;

- probable Other electric energy requirements are changed to grow at low and high GDP growth rates; and
- probable WKP&L electric energy requirements are not changed for the high case, and are lowered by 500 GW.h per year from 1991/92 to 2002/03 to reflect continued availability of electric energy from Cominco.

The low and high electric gross load requirements for the integrated system are shown on TABLE 7-3 in Part 7.

Table 8-1
B. C. PESSIMISTIC MACRO FORECASTS

	1982	1983	1984	1985	1986	1987-91	1992-2001
ECONOMIC GROWTH (Real GDP Percent Change)	-3.0	2.5	2.9	3.1	2.9	2.4	2.5
INFLATION							
(GDP Deflator Percent Change)	9.6	10.5	11.0	10.5	10.5	8.9	8.3
(Vancouver - CPI Percent Change)	11.5	10.5	10.5	10.5	10.5	8.8	8.8
POPULATION (Millions)	2.783	2.821	2.862	2.908	2.959	3.215[a]	3.698[a]
(Percent Change)	1.5	1.4	1.5	1.6	1.7	1.7	1.4
HOUSING STARTS (Thousands)	22	24	29	30	27	28	31
LABOUR FORCE (Millions)	1.35	1.38	1.43	1.48	1.52	1.68[a]	2.07[a]
UNEMPLOYMENT RATE	10.6	10.1	9.5	9.2	9.5	8.1	7.9

[a] Value for the last year of the period shown

ASSUMPTIONS:

The forecast was based on the pessimistic scenarios for the United States and Canada.

Lower net inter-provincial immigration than in the central scenario, rising gradually from 19 500 in 1982 to 35 000 by 2001.

Deterioration of management/labour climate, with an increased number of strikes.

Declining labour productivity because of expansion in the labour intensive sectors and scarcity of capital.

Table 8-2
B. C. OPTIMISTIC MACRO FORECASTS

	1982	1983	1984	1985	1986	1987-91	1992-2001
ECONOMIC GROWTH (Real GDP Percent Change)	0.3	5.0	6.2	4.8	4.2	4.5	4.5
INFLATION							
(GDP Deflator Percent Change)	9.0	8.5	8.0	6.5	6.0	6.5	6.0
(Vancouver - CPI Percent Change)	10.7	9.0	7.5	6.5	6.0	6.5	6.5
POPULATION (Millions)	2.785	2.831	2.883	2.941	3.001	3.342[a]	4.108[a]
(Percent Change)	1.5	1.7	1.8	2.0	2.0	2.2	2.1
HOUSING STARTS (Thousands)	28	33	37	34	32	35	39
LABOUR FORCE (Millions)	1.35	1.38	1.44	1.50	1.54	1.75[a]	2.31[a]
UNEMPLOYMENT RATE	9.5	8.5	7.0	6.5	6.5	6.3	6.4

[a] Value for the last year of the period shown

ASSUMPTIONS:

The forecast was based on the optimistic scenarios for the U.S. and Canada.

Higher net inter-provincial immigration, rising gradually from 21 500 in 1982 to 65 000 by 2001.

Improved management/labour climate, minimum number of strikes.

Greater capital investment and improved labour productivity.

B. C. HYDRO

HISTORIC AND LOW PROJECTIONS OF ELECTRIC POWER REQUIREMENTS BY SALES CATEGORIES

FISCAL YEAR	Residential		Total General		Other		WKP&L Co. Ltd. Load Requirements		Total Sales Less Bulk		Bulk Sales		Total Billed Sales		Losses & Accruals		Total Gross Requirements (Including WKP&L Co. Ltd. & Cominco Requirements) Energy		Peak	
	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	% of Total Sales	GW.h	Annual % Growth	MW[a]	Annual % Growth
1971/72	4 465	10.4	5 263	13.9	600[b]	43.2			10 328	13.7	5 860	11.0	16 188	12.7	1 742	10.8	17 930	11.3	3 130	5.3
72/73	4 739	6.1	5 659	7.5	453	-24.5			10 851	5.1	7 066	20.6	17 917	10.7	2 432	13.6	20 349	13.5	3 653	16.7
73/74	5 176	9.2	6 378	12.7	470	3.8			12 024	10.8	7 776	10.0	19 800	10.5	2 656	13.4	22 456	10.4	3 739	2.4
74/75	5 685	9.8	6 685	4.8	495	5.3			12 865	7.0	7 714[c]	-0.8	20 579	3.9	2 815	13.7	23 394	4.2	3 957	5.8
75/76	6 258	10.1	7 062	5.6	532	7.5			13 852	7.7	6 808[c]	-11.7	20 660	0.4	2 878	13.9	23 538	0.6	4 232	6.9
1976/77	6 625	5.9	7 592	7.5	541	1.7			14 758	6.5	8 166	19.9	22 924	11.0	3 072	13.4	25 996	10.4	4 421	4.5
77/78	7 051	6.4	8 073	6.3	561	3.7			15 685	6.3	8 479	3.8	24 164	5.4	3 372	14.0	27 536	5.9	4 800	8.6
78/79	7 492	6.3	8 512	5.4	583	3.9			16 587	5.8	9 133	7.7	25 720	6.4	3 628	14.1	29 348	6.6	5 122	6.7
79/80	7 727	3.1	8 949	5.1	625	7.2			17 301	4.3	9 217	0.9	26 518	3.1	3 455	13.0	29 973	2.1	5 231	2.1
80/81	8 042	4.1	9 344	4.4	581	-7.0			17 967	3.8	9 597	4.1	27 564	3.9	3 594	13.0	31 158	4.0	5 511	5.4
1981/82	8 640	7.4	9 706	3.9	609	4.8	14	-	18 969	5.6	9 339[d]	-2.7	28 308	2.7	4 051	14.3	32 359	3.9	5 939	7.8
Av. Annual Growth % 10 Yrs. 71/72-81/82	6.8		6.3		-		-		6.3		4.8		5.7				6.1		6.6	
PROJECTIONS																				
1982/83	8 893	2.9	9 574	-1.4	600	-1.5	80	-	19 147	0.9	8 917	-4.5	28 064	-0.9	3 736	13.3	31 800	-1.7	5 920	-0.3
83/84	9 179	3.2	9 872	3.1	615	2.5	120	50.0	19 786	3.3	9 866	10.6	29 652	5.7	3 948	13.3	33 600	5.7	6 330	6.9
84/85	9 424	2.7	10 185	3.2	630	2.4	250	108.3	20 489	3.6	10 711	8.6	31 200	5.2	4 100	13.1	35 300	5.1	6 610	4.4
85/86	9 677	2.7	10 432	2.4	650	3.2	500	100.0	21 259	3.8	11 102	3.7	32 361	3.7	4 239	13.1	36 600	3.7	6 790	2.7
86/87	9 904	2.3	10 677	2.3	665	2.3	790	58.0	22 036	3.7	11 863	6.9	33 899	4.8	4 401	13.0	38 300	4.6	7 050	3.8
1987/88	10 120	2.2	10 870	1.8	680	2.3	900	13.9	22 570	2.4	12 402	4.5	34 972	3.2	4 528	12.9	39 500	3.1	7 180	1.8
88/89	10 329	2.1	11 184	2.9	700	2.9	1 020	13.3	23 233	2.9	12 779	3.0	36 012	3.0	4 688	13.0	40 700	3.0	7 400	3.1
89/90	10 527	1.9	11 347	1.5	715	2.1	1 140	11.8	23 729	2.1	13 044	2.1	36 773	2.1	4 727	12.9	41 500	2.0	7 500	1.4
90/91	10 706	1.7	11 632	2.5	730	2.1	1 230	7.9	24 298	2.4	13 681	4.9	37 979	3.3	4 921	13.0	42 900	3.4	7 700	2.7
91/92	10 865	1.5	11 945	2.7	750	2.7	1 270	3.3	24 830	2.2	14 153	3.5	38 983	2.6	5 017	12.9	44 000	2.6	7 890	2.5
1992/93	11 018	1.4	12 153	1.7	765	2.0	1 370	7.9	25 306	1.9	14 319	1.2	39 625	1.6	5 075	12.8	44 700	1.6	8 000	1.4
1993/94	11 167		12 358		785		1 460		25 770		14 616		40 386		5 214		45 600		8 100	
94/95	11 371		12 594		805		1 560		26 330		14 927		41 257		5 243		46 500		8 300	
95/96	11 571		12 887		825		1 660		26 943		15 300		42 243		5 457		47 700		8 500	
96/97	11 758		13 127		845		1 760		27 490		15 582		43 072		5 528		48 600		8 700	
97/98	11 947		13 400		865		1 890		28 102		15 890		43 992		5 608		49 600		8 900	
1998/99	12 139		13 643		890		2 000		28 672		16 149		44 821		5 779		50 600		9 100	
99/00	12 326		13 956		915		2 080		29 277		16 474		45 751		5 849		51 600		9 200	
2000/01	12 519		14 175		940		2 200		29 834		16 650		46 484		5 916		52 400		9 300	
01/02	12 727		14 497		960		2 310		30 494		16 958		47 452		6 048		53 500		9 500	
02/03	12 955		14 809		980		2 440		31 184		17 223		48 407		6 193		54 600		9 700	
Av. Annual Growth % 11 Yrs. 81/82-92/93	2.2		2.1		2.1		-		2.7		4.0		3.1				3.0		2.7	
10 Yrs. 92/93-02/03	1.6		2.0		2.5		5.9		2.1		1.9		2.0				2.0		1.9	
21 Yrs. 81/82-02/03	1.9		2.0		2.3		-		2.4		3.0		2.6				2.5		2.4	

NOTES:

[a] Projected peak loads are based on normal weather conditions.
[b] Includes 172.9 GW.h sales of surplus thermal energy to USBR under EL 48 in 1971/72 only.
[c] Bulk sales in 1975/76 abnormally depressed by approximately 1 400 GW.h as a direct result of 3 months pulp and paper strike.
[d] Bulk sales in 1981/82 abnormally depressed by approximately 900 GW.h as a direct result of 1.5 months pulp and paper strike.

10 September 1982

MST173

B. C. HYDRO

HISTORIC AND HIGH PROJECTIONS OF ELECTRIC POWER REQUIREMENTS BY SALES CATEGORIES

TABLE 8-4

FISCAL YEAR	Residential		Total General		Other		WKP&L Co. Ltd. Load Requirements		Total Sales Less Bulk		Bulk Sales		Total Billed Sales		Losses & Accruals		Total Gross Requirements (Including WKP&L Co. Ltd. & Cominco Requirements) Energy		Peak	
	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	Annual % Growth	GW.h	% of Total Sales	GW.h	Annual % Growth	MW[a]	Annual % Growth
1971/72	4 465	10.4	5 263	13.9	600[b]	43.2			10 328	13.7	5 860	11.0	16 188	12.7	1 742	10.8	17 930	11.3	3 130	5.3
72/73	4 739	6.1	5 659	7.5	453	-24.5			10 851	5.1	7 066	20.6	17 917	10.7	2 432	13.6	20 349	13.5	3 653	16.7
73/74	5 176	9.2	6 378	12.7	470	3.8			12 024	10.8	7 776	10.0	19 800	10.5	2 656	13.4	22 456	10.4	3 739	2.4
74/75	5 685	9.8	6 685	4.8	495	5.3			12 865	7.0	7 714	-0.8	20 579	3.9	2 815	13.7	23 394	4.2	3 957	5.8
75/76	6 258	10.1	7 062	5.6	532	7.5			13 852	7.7	6 808[c]	-11.7	20 660	0.4	2 878	13.9	23 538	0.6	4 232	6.9
1976/77	6 625	5.9	7 592	7.5	541	1.7			14 758	6.5	8 166	19.9	22 924	11.0	3 072	13.4	25 996	10.4	4 421	4.5
77/78	7 051	6.4	8 073	6.3	561	3.7			15 685	6.3	8 479	3.8	24 164	5.4	3 372	14.0	27 536	5.9	4 800	8.6
78/79	7 492	6.3	8 512	5.4	583	3.9			16 587	5.8	9 133	7.7	25 720	6.4	3 628	14.1	29 348	6.6	5 122	6.7
79/80	7 727	3.1	8 949	5.1	625	7.2			17 301	4.3	9 217	0.9	26 518	3.1	3 455	13.0	29 973	2.1	5 231	2.1
80/81	8 042	4.1	9 344	4.4	581	-7.0			17 967	3.8	9 597	4.1	27 564	3.9	3 594	13.0	31 158	4.0	5 511	5.4
1981/82	8 640	7.4	9 706	3.9	609	4.8	14	-	18 969	5.6	9 339[d]	-2.7	28 308	2.7	4 051	14.3	32 359	3.9	5 939	7.8
Av. Annual Growth % 10 Yrs. 71/72-81/82	6.8		6.3		-		-		6.3		4.8		5.7				6.1		6.6	
PROJECTIONS																				
1982/83	8 950	3.6	9 909	2.1	630	3.4	80	-	19 569	3.2	9 615	3.0	29 184	3.1	3 916	13.4	33 100	2.3	6 160	3.7
83/84	9 315	4.1	10 437	5.3	660	4.8	120	50.0	20 532	4.9	10 680	11.1	31 212	6.9	4 188	13.4	35 400	6.9	6 670	8.3
84/85	9 662	3.7	11 098	6.3	690	4.5	250	108.3	21 700	5.7	11 863	11.1	33 563	7.5	4 437	13.2	38 000	7.3	7 110	6.6
85/86	10 038	3.9	11 546	4.0	720	4.3	500	100.0	22 804	5.1	12 638	6.5	35 442	5.6	4 658	13.1	40 100	5.5	7 440	4.6
86/87	10 408	3.7	11 969	3.7	750	4.2	790	58.0	23 917	4.9	13 806	9.2	37 723	6.4	4 977	13.2	42 700	6.5	7 860	5.6
1987/88	10 785	3.6	12 437	3.9	785	4.7	900	13.9	24 907	4.1	14 867	7.7	39 774	5.4	5 226	13.1	45 000	5.4	8 180	4.1
88/89	11 172	3.6	13 018	4.7	820	4.5	1 020	13.3	26 030	4.5	15 723	5.8	41 753	5.0	5 447	13.0	47 200	4.9	8 580	4.9
89/90	11 564	3.5	13 525	3.9	855	4.3	1 140	11.8	27 084	4.0	16 586	5.5	43 670	4.6	5 630	12.9	49 300	4.4	8 900	3.7
90/91	11 959	3.4	14 090	4.2	890	4.1	1 230	7.9	28 169	4.0	17 795	7.3	45 964	5.3	5 936	12.9	51 900	5.3	9 320	4.7
91/92	12 360	3.4	14 741	4.6	935	5.1	1 770	43.9	29 806	5.8	18 882	6.1	48 688	5.9	6 312	13.0	55 000	6.0	9 860	5.8
1992/93	12 786	3.4	15 261	3.5	970	3.7	1 870	5.6	30 887	3.6	19 595	3.8	50 482	3.7	6 518	12.9	57 000	3.6	10 200	3.4
1993/94	13 247		15 833		1 110		1 960		32 150		20 554		52 704		6 796		59 500		10 600	
94/95	13 814		16 486		1 150		2 060		33 510		21 593		55 103		7 097		62 200		11 100	
95/96	14 424		17 182		1 190		2 160		34 956		22 647		57 603		7 397		65 000		11 600	
96/97	15 059		17 836		1 230		2 260		36 385		23 678		60 063		7 737		67 800		12 100	
97/98	15 724		18 519		1 270		2 390		37 903		24 700		62 603		7 997		70 600		12 600	
1998/99	16 415		19 210		1 320		2 500		39 445		25 724		65 169		8 331		73 500		13 300	
99/00	17 115		20 064		1 370		2 580		41 129		26 904		68 033		8 767		76 800		13 700	
2000/01	17 595		20 761		1 420		2 700		42 476		27 895		70 371		9 029		79 400		14 400	
01/02	18 091		21 674		1 470		2 810		44 045		29 146		73 191		9 409		82 600		14 700	
02/03	18 611		22 556		1 506		2 940		45 613		30 307		75 920		9 680		85 600		15 200	
Av. Annual Growth % 11 Yrs. 81/82-92/93	3.6		4.2		4.3		-		4.5		7.0		5.4				5.3		5.0	
10 Yrs. 92/93-02/03	3.8		4.0		4.5		4.6		4.0		4.5		4.2				4.2		4.1	
21 Yrs. 81/82-02/03	3.7		4.1		4.4		-		4.3		5.8		4.8				4.7		4.6	

NOTES:

[a] Projected peak loads are based on normal weather conditions.
[b] Includes 172.9 GW.h sales of surplus thermal energy to USBR under EL 48 in 1971/72 only.
[c] Bulk sales in 1975/76 abnormally depressed by approximately 1 400 GW.h as a direct result of 3 months pulp and paper strike.
[d] Bulk sales in 1981/82 abnormally depressed by approximately 900 GW.h as a direct result of 1.5 months pulp and paper strike.

10 September 1982

MST174

TABLE 8-4

PART NINE

GAS PROJECTIONS

Page

9.1 Introduction 135

9.2 Probable Projection 136

9.3 High and Low Projections 136

9.4 Sales Comparison 137

9.5 Vancouver Island 137

9.6 Composition of Residential Dwellings and Market Shares Captured 137

TABLE 9-1 Detailed Probable Projection for the Lower Mainland 139
TABLE 9-2 Detailed Probable Projection for Metropolitan 143
TABLE 9-3 Detailed Probable Projection for Fraser Valley 147

TABLE 9-4 Detailed High Projection for the Lower Mainlaind 151
TABLE 9-5 Detailed High Projection for Metropolitan 155
TABLE 9-6 Detailed High Projection for Fraser Valley 159

TABLE 9-7 Detailed Low Projection for the Lower Mainland 163
TABLE 9-8 Detailed Low Projection for Metropolitan 167
TABLE 9-9 Detailed Low Projection for Fraser Valley 171

TABLE 9-10 Comparison of Actual Sales with Probable Projections 175
TABLE 9-11 Vancouver Island LP Probable Gas Sales 176

PART NINE

GAS PROJECTIONS

9.1 Introduction

The gas service forecasts are presented in metric units. The basic unit of gas measurement in the metric system is the Joule (J). The metric unit adopted by B. C. Hydro for billing purposes is called the Billing Unit (BU) which is equal to 10^8 J or 0.1 GJ. The conversion of imperial units to the metric system is based on the relationship British Thermal Units (BTU) x 1 054.6 equals Joules.

During fiscal year 1981/82, B. C. Hydro's actual natural gas sales in the Lower Mainland of B. C. amounted to 714 853 000 BU of firm gas and 224 844 000 BU of interruptible gas. These volumes exclude pipeline losses and natural gas sold for thermal electric generation. Since most gas sold is used for space heating, and this load is very much affected by the weather experienced during the year, it is necessary to normalize natural gas sales in order to be able to make valid year-to-year sales comparisons. In addition to this normalization, sales volumes lost due to strikes are added back to the interruptible load and this load is also put on the basis of 30 days of curtailment, which is the standard used for planning purposes. On the basis of normalized sales, firm sales came to 723 260 000 BU and interruptible sales to 214 965 000 BU. This compares with normalized sales of 669 117 000 BU of firm gas and 226 115 000 BU of interruptible gas during fiscal year 1980/81. Therefore, firm gas sales experienced a one-year growth rate of 8.1% and interruptible sales decreased by 4.9%. On 31 March 1982 there were 327 246 firm customers and 95 interruptible customers on the system. One year earlier there were 313 866 firm customers and 97 interruptible customers. Therefore, firm accounts increased by 4.3% while interruptible accounts decreased by 2.1%.

This year for the first time the sale of Compressed Natural Gas (CNG) for automotive purposes has been included in the sales projections. It is assumed that CNG will be actively promoted and that this fuel will be very competitive with gasoline. The demand for CNG is essentially based on the projections prepared for B. C. Hydro by Canadian Resourcecon Limited in December 1981. The demand in the first seven years has been reduced somewhat.

9.2 Probable Projection

The probable sales projections are shown in TABLES 9-1, 9-2 and 9-3 for the Lower Mainland, Metro and Fraser Valley respectively. The first column on the first page of each table shows actual sales. This is followed by normalized sales in the second column followed by normalized sales for the current year and the next five years. The very last column on this page shows the average annual compound growth rate for the six year period from 1981/82 to 1987/88 relative to normalized sales (Column #2).

The assumptions underlying the probable as well as the high and low projections are listed in detail in Appendix I. The probable forecast is the main one. System plans and operating budgets are based on it.

9.3 High and Low Projections

The high sales projections are shown in TABLES 9-4, 9-5 and 9-6 for the Lower Mainland, Metro and Fraser Valley respectively. TABLES 9-7, 9-8 and 9-9 show the low forecasts for these three areas.

Neither the high nor the low forecasts are based on extreme sets of assumptions such as unavailability or dumping of natural gas. Both of these projections could be realized when the pace of the economy speeds up or slows down from the conditions assumed for the probable projection.

The high and low projections differ only from the probable one relative to the following classifications: Residential with Heating (RWH), General with Heating (GWH), Compressed Natural Gas (CNG), and Interruptible (INT). However, these classifications represented 95.0% of the total load in fiscal year 1981/82.

9.4 Sales Comparison

Comparisons of actual and normalized gas sales with probable projections prepared at different times for the Lower Mainland area are shown in TABLE 9-10. For each generation of forecasts, total sales volumes are shown for five fiscal year periods. The next two lines for each forecast show the percentages of the variances of forecast relative to actual sales (A) and normalized sales (N). A negative sign indicates that the forecast was too low.

9.5 Vancouver Island

TABLE 9-11 shows the projection of probable LP gas sales on Vancouver Island. The forecast assumes that the load will be increased during the current year and will reach the full capacity of the presently installed system in fiscal year 1983/84. It is also assumed that the load will remain at that level unless the natural gas pipeline crossing to Vancouver Island is completed during the forecast period.

9.6 Composition of Residential Dwellings and Market Shares Captured

Relative housing starts in that part of the Lower Mainland which is served by natural gas (Gas Area) during fiscal year 1981/82 were as follows:

	Metro (%)	Fraser Valley (%)	Lower Mainland (%)
Singles	23	29	26
Duplexes	3	2	3
Row Houses	16	20	17
Apartments	58	49	54
	100	100	100

Capture rates of residential space heating in new housing in the Lower Mainland for the same one year period were as shown below:

	Natural Gas (%)	Electric (%)	Other (%)
Singles & Duplexes	90	7	3
Row Houses	50	50	0
Apartments	41	59	0
Weighted Total	62	37	1

N A T U R A L G A S

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 1 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

LOWER MAINLAND

1982 EDITION REVISION# 1

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	10,098	10,098	9,750	9,400	9,050	8,700	8,350	8,000	-3.81
AVG ANNUAL ACCTS	10,619	10,619	9,925	9,575	9,225	8,875	8,525	8,175	
AVG ANNUAL USE(BU)	717	704	748	768	788	809	829	848	3.15
SALES (1000 BU)	7,611	7,480	7,420	7,350	7,270	7,180	7,070	6,930	-1.26
RES WITH HEAT									
YEAR END ACCTS	281,770	281,770	291,200	302,000	313,000	324,100	335,500	345,000	3.43
AVG ANNUAL ACCTS	275,941	275,941	286,450	296,600	307,500	318,550	329,800	340,250	
AVG ANNUAL USE(BU)	1,284	1,300	1,295	1,291	1,278	1,261	1,246	1,232	-0.89
SALES (1000 BU)	354,293	358,600	371,000	383,000	392,900	401,800	410,900	419,100	2.63
GEN WITHOUT HEAT									
YEAR END ACCTS	3,352	3,352	3,150	2,955	2,760	2,615	2,470	2,375	-5.58
AVG ANNUAL ACCTS	3,423	3,423	3,255	3,055	2,860	2,690	2,545	2,425	
AVG ANNUAL USE(BU)	10,830	11,065	11,080	12,005	12,915	13,370	13,780	14,130	4.16
SALES (1000 BU)	37,066	37,870	36,060	36,670	36,930	35,970	35,070	34,260	-1.66
GEN WITH HEAT									
YEAR END ACCTS	31,910	31,910	32,800	33,800	35,000	36,600	38,600	40,600	4.10
AVG ANNUAL ACCTS	31,032	31,032	32,355	33,300	34,400	35,800	37,600	39,600	
AVG ANNUAL USE(BU)	10,120	10,220	9,700	10,010	10,240	10,150	10,040	9,950	-0.45
SALES (1000 BU)	313,897	317,270	314,000	333,200	352,400	363,400	377,600	394,000	3.68
SEASONAL									
YEAR END ACCTS	40	40	40	40	41	42	43	43	1.21
AVG ANNUAL ACCTS	42	42	41	40	41	42	43	43	
AVG ANNUAL USE(BU)	26,980	28,570	28,290	28,000	27,800	27,620	27,440	27,440	-0.67
SALES (1000 BU)	1,133	1,200	1,160	1,120	1,140	1,160	1,180	1,180	-0.28
BC HYDRO USE									
YEAR END ACCTS	76	76	77	79	79	80	81	82	1.27
AVG ANNUAL ACCTS	74	74	77	79	79	80	81	82	
AVG ANNUAL USE(BU)	11,530	11,350	11,560	11,650	11,770	11,880	11,850	11,830	0.69
SALES (1000 BU)	853	840	890	920	930	950	960	970	2.43
CNG(FIRM)									
YEAR END ACCTS			3	11	20	29	39	49	999.00
AVG ANNUAL ACCTS			2	8	16	25	34	45	
AVG ANNUAL USE(BU)			15,000	36,300	58,100	146,800	257,600	343,600	999.00
SALES (1000 BU)			30	290	930	3,670	8,760	15,460	0.00
TOTAL FIRM									
YEAR END ACCTS	327,246	327,246	337,020	348,285	359,950	372,166	385,083	396,149	3.24
AVG ANNUAL ACCTS	321,131	321,131	332,105	342,657	354,121	366,062	378,628	390,620	
AVG ANNUAL USE(BU)	2,226	2,252	2,200	2,225	2,238	2,224	2,223	2,232	-0.15
SALES (1000 BU)	714,853	723,260	730,560	762,550	792,500	814,130	841,540	871,900	3.16
CNG(INTERRUP.)									
YEAR END ACCTS			2	2	3	4	4	4	999.00
AVG ANNUAL ACCTS			2	2	3	4	4	4	
AVG ANNUAL USE(BU)			65,000	360,000	643,300	642,500	677,500	752,500	999.00
SALES (1000 BU)			130	720	1,930	2,570	2,710	3,010	0.00
OTHER INTERRUP.									
YEAR END ACCTS	95	95	100	100	102	103	105	106	1.84
AVG ANNUAL ACCTS	96	96	98	100	102	103	105	106	
AVG ANNUAL USE(BU)	2,342,100	2,239,200	2,193,900	2,193,000	2,192,200	2,214,600	2,217,100	2,239,600	0.00
SALES (1000 BU)	224,844	214,965	215,000	219,300	223,600	228,100	232,800	237,400	1.67
TOTAL INTERRUPT.									
YEAR END ACCTS	95	95	102	102	105	107	109	110	2.47
AVG ANNUAL ACCTS	96	96	100	102	105	107	109	110	
AVG ANNUAL USE(BU)	2,342,100	2,239,200	2,151,300	2,157,100	2,147,900	2,155,800	2,160,600	2,185,500	-0.40
SALES (1000 BU)	224,844	214,965	215,130	220,020	225,530	230,670	235,510	240,410	1.88
TOTAL SALES									
YEAR END ACCTS	327,341	327,341	337,122	348,387	360,055	372,273	385,192	396,259	3.24
AVG ANNUAL ACCTS	321,227	321,227	332,205	342,759	354,226	366,169	378,737	390,730	
AVG ANNUAL USE(BU)	2,925	2,921	2,847	2,867	2,874	2,853	2,844	2,847	-0.43
SALES (1000 BU)	939,697	938,225	945,690	982,570	1,018,030	1,044,800	1,077,050	1,112,310	2.88

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-1

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

LOWER MAINLAND

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	 11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	7,750	7,500	7,250	7,000	6,750	-3.34	-3.60
AVG ANNUAL ACCTS	7,875	7,625	7,375	7,125	6,875		
AVG ANNUAL USE(BU)	861	875	888	901	915	1.53	2.41
SALES (1000 BU)	6,780	6,670	6,550	6,420	6,290	-1.92	-1.56
RES WITH HEAT							
YEAR END ACCTS	352,800	361,000	369,200	377,900	386,700	2.31	2.92
AVG ANNUAL ACCTS	348,900	356,900	365,100	373,550	382,300		
AVG ANNUAL USE(BU)	1,215	1,199	1,184	1,168	1,155	-1.28	-1.07
SALES (1000 BU)	424,000	427,900	432,200	436,400	441,600	1.05	1.91
GEN WITHOUT HEAT							
YEAR END ACCTS	2,280	2,185	2,090	1,995	1,900	-4.36	-5.03
AVG ANNUAL ACCTS	2,330	2,235	2,140	2,045	1,950		
AVG ANNUAL USE(BU)	14,410	14,705	15,025	15,370	15,750	2.19	3.26
SALES (1000 BU)	33,570	32,870	32,150	31,430	30,710	-2.16	-1.89
GEN WITH HEAT							
YEAR END ACCTS	42,800	45,000	47,400	49,800	52,400	5.24	4.61
AVG ANNUAL ACCTS	41,700	43,900	46,200	48,600	51,100		
AVG ANNUAL USE(BU)	9,850	9,760	9,680	9,610	9,540	-0.84	-0.62
SALES (1000 BU)	410,600	428,500	447,100	467,000	487,600	4.36	3.98
SEASONAL							
YEAR END ACCTS	45	45	46	47	48	2.22	1.67
AVG ANNUAL ACCTS	45	45	46	47	48		
AVG ANNUAL USE(BU)	27,330	27,330	27,170	27,450	27,290	-0.11	-0.42
SALES (1000 BU)	1,230	1,230	1,250	1,290	1,310	2.11	0.80
BC HYDRO USE							
YEAR END ACCTS	82	84	84	85	86	0.96	1.13
AVG ANNUAL ACCTS	82	84	84	85	86		
AVG ANNUAL USE(BU)	11,830	11,900	12,020	12,000	12,090	0.44	0.58
SALES (1000 BU)	970	1,000	1,010	1,020	1,040	1.40	1.96
CNG(FIRM)							
YEAR END ACCTS	57	67	78	87	99	15.10	0.00
AVG ANNUAL ACCTS	53	62	73	83	93		
AVG ANNUAL USE(BU)	424,900	445,000	459,300	436,400	420,200	4.11	0.00
SALES (1000 BU)	22,520	27,590	33,530	36,220	39,080	20.38	0.00
TOTAL FIRM							
YEAR END ACCTS	405,814	415,881	426,148	436,914	447,983	2.49	2.90
AVG ANNUAL ACCTS	400,985	410,851	421,018	431,535	442,452		
AVG ANNUAL USE(BU)	2,244	2,253	2,265	2,270	2,277	0.40	0.10
SALES (1000 BU)	899,670	925,760	953,790	979,780	1,007,630	2.94	3.06
CNG(INTERRUP.)							
YEAR END ACCTS	6	6	7	8	8	14.87	0.00
AVG ANNUAL ACCTS	6	6	7	8	8		
AVG ANNUAL USE(BU)	595,000	643,300	698,600	630,000	652,500	-2.81	0.00
SALES (1000 BU)	3,570	3,860	4,890	5,040	5,220	11.64	0.00
OTHER INTERRUP.							
YEAR END ACCTS	108	109	110	112	113	1.29	1.59
AVG ANNUAL ACCTS	108	109	110	112	113		
AVG ANNUAL USE(BU)	2,239,800	2,261,500	2,283,600	2,285,700	2,308,800	0.61	0.28
SALES (1000 BU)	241,900	246,500	251,200	256,000	260,900	1.91	1.78
TOTAL INTERRUPT.							
YEAR END ACCTS	114	115	117	120	121	1.92	2.22
AVG ANNUAL ACCTS	114	115	117	120	121		
AVG ANNUAL USE(BU)	2,153,200	2,177,000	2,188,800	2,175,300	2,199,300	0.13	-0.16
SALES (1000 BU)	245,470	250,360	256,090	261,040	266,120	2.05	1.96
TOTAL SALES							
YEAR END ACCTS	405,928	415,996	426,265	437,034	448,104	2.49	2.90
AVG ANNUAL ACCTS	401,099	410,966	421,135	431,655	442,573		
AVG ANNUAL USE(BU)	2,855	2,862	2,873	2,875	2,878	0.22	-0.13
SALES (1000 BU)	1,145,140	1,176,120	1,209,880	1,240,820	1,273,750	2.75	2.82

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

NATURAL GAS

DETAILED FORECAST — 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES — PAGE 3 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1 — LOWER MAINLAND

	1993/94	1994/95	1995/96	1996/97	1997/98	AVG. ANNUAL GROWTH	
						5 YRS(%)	16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	6,550	6,350	6,150	5,950	5,750	-3.16	-3.46
AVG ANNUAL ACCTS	6,650	6,450	6,250	6,050	5,850		
AVG ANNUAL USE(BU)	925	932	941	949	956	0.88	1.93
SALES (1000 BU)	6,150	6,010	5,880	5,740	5,590	-2.33	-1.80
RES WITH HEAT							
YEAR END ACCTS	395,700	405,000	414,500	424,300	434,300	2.35	2.74
AVG ANNUAL ACCTS	391,200	400,350	409,750	419,400	429,300		
AVG ANNUAL USE(BU)	1,142	1,134	1,126	1,119	1,112	-0.76	-0.97
SALES (1000 BU)	446,800	453,900	461,500	469,300	477,300	1.57	1.80
GEN WITHOUT HEAT							
YEAR END ACCTS	1,855	1,810	1,765	1,720	1,675	-2.49	-4.24
AVG ANNUAL ACCTS	1,880	1,835	1,790	1,745	1,700		
AVG ANNUAL USE(BU)	16,050	16,290	16,540	16,800	17,080	1.63	2.75
SALES (1000 BU)	30,170	29,890	29,610	29,320	29,040	-1.11	-1.65
GEN WITH HEAT							
YEAR END ACCTS	55,000	57,800	60,600	63,600	66,600	4.91	4.71
AVG ANNUAL ACCTS	53,700	56,400	59,200	62,100	65,100		
AVG ANNUAL USE(BU)	9,480	9,410	9,360	9,330	9,300	-0.51	-0.59
SALES (1000 BU)	508,900	530,900	554,200	579,100	605,400	4.42	4.12
SEASONAL							
YEAR END ACCTS	48	50	50	51	52	1.61	1.65
AVG ANNUAL ACCTS	48	50	50	51	52		
AVG ANNUAL USE(BU)	27,290	27,200	27,200	27,060	27,310	0.01	-0.28
SALES (1000 BU)	1,310	1,360	1,360	1,380	1,420	1.63	1.06
BC HYDRO USE							
YEAR END ACCTS	87	87	89	89	90	0.91	1.06
AVG ANNUAL ACCTS	87	87	89	89	90		
AVG ANNUAL USE(BU)	12,180	12,180	12,020	12,130	12,110	0.03	0.41
SALES (1000 BU)	1,060	1,060	1,070	1,080	1,090	0.94	1.64
CNG(FIRM)							
YEAR END ACCTS	109	119	130	141	151	8.81	0.00
AVG ANNUAL ACCTS	104	114	125	136	146		
AVG ANNUAL USE(BU)	405,500	399,100	392,500	388,900	390,400	-1.46	0.00
SALES (1000 BU)	42,170	45,500	49,060	52,890	57,000	7.84	0.00
TOTAL FIRM							
YEAR END ACCTS	459,349	471,216	483,284	495,851	508,618	2.57	2.79
AVG ANNUAL ACCTS	453,669	465,286	477,254	489,571	502,238		
AVG ANNUAL USE(BU)	2,285	2,297	2,310	2,326	2,343	0.57	0.25
SALES (1000 BU)	1,036,560	1,068,620	1,102,680	1,138,810	1,176,840	3.15	3.09
CNG(INTERRUP.)							
YEAR END ACCTS	9	9	9	9	9	2.38	0.00
AVG ANNUAL ACCTS	9	9	9	9	9		
AVG ANNUAL USE(BU)	601,100	622,200	645,600	671,100	698,900	1.38	0.00
SALES (1000 BU)	5,410	5,600	5,810	6,040	6,290	3.80	0.00
OTHER INTERRUP.							
YEAR END ACCTS	114	116	117	119	120	1.21	1.47
AVG ANNUAL ACCTS	114	116	117	119	120		
AVG ANNUAL USE(BU)	2,329,800	2,331,000	2,353,000	2,354,600	2,376,700	0.58	0.37
SALES (1000 BU)	265,600	270,400	275,300	280,200	285,200	1.80	1.78
TOTAL INTERRUPT.							
YEAR END ACCTS	123	125	126	128	129	1.29	1.93
AVG ANNUAL ACCTS	123	125	126	128	129		
AVG ANNUAL USE(BU)	2,203,300	2,208,000	2,231,000	2,236,300	2,259,600	0.54	0.06
SALES (1000 BU)	271,010	276,000	281,110	286,240	291,490	1.84	1.92
TOTAL SALES							
YEAR END ACCTS	459,472	471,341	483,410	495,979	508,747	2.57	2.79
AVG ANNUAL ACCTS	453,792	465,411	477,380	489,699	502,367		
AVG ANNUAL USE(BU)	2,881	2,889	2,899	2,910	2,923	0.31	0.00
SALES (1000 BU)	1,307,570	1,344,620	1,383,790	1,425,050	1,468,330	2.88	2.84

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-1

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1 LOWER MAINLAND

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH	
						5 YRS(%)	21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	5,600	5,450	5,300	5,150	5,000	-2.76	-3.29
AVG ANNUAL ACCTS	5,675	5,525	5,375	5,225	5,075		
AVG ANNUAL USE(BU)	959	961	966	968	971	0.31	1.54
SALES (1000 BU)	5,440	5,310	5,190	5,060	4,930	-2.48	-1.97
RES WITH HEAT							
YEAR END ACCTS	444,500	455,000	465,700	476,000	486,500	2.30	2.63
AVG ANNUAL ACCTS	439,400	449,750	460,350	470,850	481,250		
AVG ANNUAL USE(BU)	1,105	1,098	1,091	1,085	1,078	-0.62	-0.89
SALES (1000 BU)	485,400	493,800	502,200	510,700	518,900	1.69	1.78
GEN WITHOUT HEAT							
YEAR END ACCTS	1,655	1,635	1,615	1,595	1,575	-1.22	-3.53
AVG ANNUAL ACCTS	1,670	1,650	1,630	1,610	1,590		
AVG ANNUAL USE(BU)	17,300	17,480	17,670	17,865	18,055	1.12	2.36
SALES (1000 BU)	28,890	28,840	28,800	28,760	28,710	-0.23	-1.31
GEN WITH HEAT							
YEAR END ACCTS	69,700	72,900	76,200	79,500	82,900	4.48	4.65
AVG ANNUAL ACCTS	68,150	71,300	74,550	77,850	81,200		
AVG ANNUAL USE(BU)	9,270	9,240	9,220	9,200	9,180	-0.26	-0.51
SALES (1000 BU)	631,700	659,000	687,100	716,000	745,600	4.25	4.15
SEASONAL							
YEAR END ACCTS	53	53	55	55	56	1.49	1.62
AVG ANNUAL ACCTS	53	53	55	55	56		
AVG ANNUAL USE(BU)	26,980	26,980	27,090	27,090	27,140	-0.12	-0.24
SALES (1000 BU)	1,430	1,430	1,490	1,490	1,520	1.37	1.13
BC HYDRO USE							
YEAR END ACCTS	91	92	93	94	95	1.09	1.07
AVG ANNUAL ACCTS	91	92	93	94	95		
AVG ANNUAL USE(BU)	12,090	12,170	12,150	12,130	12,210	0.16	0.35
SALES (1000 BU)	1,100	1,120	1,130	1,140	1,160	1.25	1.55
CNG(FIRM)							
YEAR END ACCTS	160	170	180	190	198	5.57	0.00
AVG ANNUAL ACCTS	156	165	175	186	195		
AVG ANNUAL USE(BU)	393,500	400,800	407,000	406,100	410,900	1.03	0.00
SALES (1000 BU)	61,390	66,130	71,220	75,530	80,120	7.05	0.00
TOTAL FIRM							
YEAR END ACCTS	521,759	535,300	549,143	562,584	576,324	2.53	2.73
AVG ANNUAL ACCTS	515,195	528,535	542,228	555,870	569,461		
AVG ANNUAL USE(BU)	2,359	2,376	2,392	2,408	2,425	0.69	0.35
SALES (1000 BU)	1,215,350	1,255,630	1,297,130	1,338,680	1,380,940	3.25	3.13
CNG(INTERRUP.)							
YEAR END ACCTS	10	10	10	10	12	5.92	0.00
AVG ANNUAL ACCTS	10	10	10	10	12		
AVG ANNUAL USE(BU)	657,000	686,000	716,000	749,000	650,800	-1.42	0.00
SALES (1000 BU)	6,570	6,860	7,160	7,490	7,810	4.42	0.00
OTHER INTERRUP.							
YEAR END ACCTS	122	124	125	128	129	1.46	1.47
AVG ANNUAL ACCTS	121	124	125	127	129		
AVG ANNUAL USE(BU)	2,397,500	2,378,200	2,400,000	2,401,600	2,405,400	0.24	0.34
SALES (1000 BU)	290,100	294,900	300,000	305,000	310,300	1.70	1.76
TOTAL INTERRUPT.							
YEAR END ACCTS	132	134	135	138	141	1.79	1.90
AVG ANNUAL ACCTS	131	134	135	137	141		
AVG ANNUAL USE(BU)	2,264,700	2,251,900	2,275,300	2,280,900	2,256,100	-0.03	0.04
SALES (1000 BU)	296,670	301,760	307,160	312,490	318,110	1.76	1.88
TOTAL SALES							
YEAR END ACCTS	521,891	535,434	549,278	562,722	576,465	2.53	2.73
AVG ANNUAL ACCTS	515,326	528,669	542,363	556,007	569,602		
AVG ANNUAL USE(BU)	2,934	2,946	2,958	2,970	2,983	0.41	0.10
SALES (1000 BU)	1,512,020	1,557,390	1,604,290	1,651,170	1,699,050	2.96	2.87

NOTES:
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2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-2

N A T U R A L   G A S

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 1 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

METROPOLITAN

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	8,913	8,913	8,500	8,100	7,700	7,300	6,900	6,500	-5.13
AVG ANNUAL ACCTS	9,446	9,446	8,705	8,300	7,900	7,500	7,100	6,700	
AVG ANNUAL USE(BU)	687	680	725	745	765	785	805	825	3.27
SALES (1000 BU)	6,490	6,420	6,310	6,180	6,040	5,890	5,720	5,530	-2.46
RES WITH HEAT									
YEAR END ACCTS	175,246	175,246	181,100	187,600	194,100	200,600	207,200	211,800	3.21
AVG ANNUAL ACCTS	171,373	171,373	178,150	184,350	190,850	197,350	203,900	209,500	
AVG ANNUAL USE(BU)	1,328	1,345	1,339	1,334	1,322	1,307	1,293	1,280	-0.82
SALES (1000 BU)	227,586	230,500	238,500	245,900	252,300	257,900	263,600	268,200	2.56
GEN WITHOUT HEAT									
YEAR END ACCTS	3,005	3,005	2,800	2,600	2,400	2,250	2,100	2,000	-6.56
AVG ANNUAL ACCTS	3,078	3,078	2,905	2,700	2,500	2,325	2,175	2,050	
AVG ANNUAL USE(BU)	8,796	8,800	8,800	9,400	9,950	10,150	10,300	10,400	2.82
SALES (1000 BU)	27,073	27,090	25,560	25,380	24,870	23,600	22,400	21,320	-3.91
GEN WITH HEAT									
YEAR END ACCTS	22,214	22,214	22,600	23,100	23,700	24,500	25,500	26,500	2.98
AVG ANNUAL ACCTS	21,810	21,810	22,405	22,850	23,400	24,100	25,000	26,000	
AVG ANNUAL USE(BU)	11,121	11,250	10,676	11,003	11,273	11,181	11,077	10,981	-0.40
SALES (1000 BU)	242,542	245,350	239,200	251,400	263,800	269,500	276,900	285,500	2.56
SEASONAL									
YEAR END ACCTS	19	19	20	20	21	21	22	22	2.47
AVG ANNUAL ACCTS	20	20	20	20	21	21	22	22	
AVG ANNUAL USE(BU)	25,150	25,000	25,500	25,850	26,100	26,300	26,400	26,500	0.98
SALES (1000 BU)	503	500	510	520	550	550	580	580	2.50
BC HYDRO USE									
YEAR END ACCTS	44	44	45	46	46	47	47	48	1.46
AVG ANNUAL ACCTS	42	42	45	46	46	47	47	48	
AVG ANNUAL USE(BU)	11,297	11,500	11,800	12,000	12,200	12,300	12,400	12,500	1.40
SALES (1000 BU)	474	480	530	550	560	580	580	600	3.79
CNG(FIRM)									
YEAR END ACCTS			2	7	12	18	24	31	999.00
AVG ANNUAL ACCTS			1	5	10	15	21	28	
AVG ANNUAL USE(BU)			20,000	36,000	58,000	152,600	261,000	345,000	999.00
SALES (1000 BU)			20	180	580	2,290	5,480	9,660	0.00
TOTAL FIRM									
YEAR END ACCTS	209,441	209,441	215,067	221,473	227,979	234,736	241,793	246,901	2.78
AVG ANNUAL ACCTS	205,769	205,769	212,231	218,271	224,727	231,358	238,265	244,348	
AVG ANNUAL USE(BU)	2,453	2,480	2,406	2,429	2,442	2,422	2,414	2,420	-0.41
SALES (1000 BU)	504,668	510,340	510,630	530,110	548,700	560,310	575,260	591,390	2.49
CNG(INTERRUP.)									
YEAR END ACCTS			1	1	2	3	3	3	999.00
AVG ANNUAL ACCTS			1	1	2	3	3	3	
AVG ANNUAL USE(BU)			90,000	500,000	675,000	600,000	633,300	703,300	999.00
SALES (1000 BU)			90	500	1,350	1,800	1,900	2,110	0.00
OTHER INTERRUP.									
YEAR END ACCTS	75	75	81	81	82	83	84	85	2.11
AVG ANNUAL ACCTS	76	76	78	81	82	83	84	85	
AVG ANNUAL USE(BU)	2,505,303	2,269,900	2,265,400	2,224,700	2,241,500	2,259,000	2,277,400	2,295,300	0.19
SALES (1000 BU)	190,403	172,509	176,700	180,200	183,800	187,500	191,300	195,100	2.07
TOTAL INTERRUPT.									
YEAR END ACCTS	75	75	82	82	84	86	87	88	2.70
AVG ANNUAL ACCTS	76	76	79	82	84	86	87	88	
AVG ANNUAL USE(BU)	2,505,300	2,269,900	2,237,800	2,203,700	2,204,200	2,201,200	2,220,700	2,241,000	-0.21
SALES (1000 BU)	190,403	172,509	176,790	180,700	185,150	189,300	193,200	197,210	2.26
TOTAL SALES									
YEAR END ACCTS	209,516	209,516	215,149	221,555	228,063	234,822	241,880	246,989	2.78
AVG ANNUAL ACCTS	205,845	205,845	212,310	218,353	224,811	231,444	238,352	244,436	
AVG ANNUAL USE(BU)	3,377	3,317	3,238	3,255	3,264	3,239	3,224	3,226	-0.46
SALES (1000 BU)	695,071	682,849	687,420	710,810	733,850	749,610	768,460	788,600	2.43

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-2

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

METROPOLITAN

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	6,200	5,900	5,600	5,300	5,000	-5.11	-5.12
AVG ANNUAL ACCTS	6,350	6,050	5,750	5,450	5,150		
AVG ANNUAL USE(BU)	840	855	870	885	900	1.76	2.58
SALES (1000 BU)	5,330	5,170	5,000	4,820	4,630	-3.49	-2.93
RES WITH HEAT							
YEAR END ACCTS	214,600	217,600	220,600	223,900	227,300	1.42	2.39
AVG ANNUAL ACCTS	213,200	216,100	219,100	222,250	225,600		
AVG ANNUAL USE(BU)	1,265	1,249	1,234	1,219	1,204	-1.22	-1.00
SALES (1000 BU)	269,700	269,900	270,400	270,900	271,600	0.25	1.50
GEN WITHOUT HEAT							
YEAR END ACCTS	1,900	1,800	1,700	1,600	1,500	-5.59	-6.12
AVG ANNUAL ACCTS	1,950	1,850	1,750	1,650	1,550		
AVG ANNUAL USE(BU)	10,450	10,500	10,550	10,600	10,650	0.48	1.75
SALES (1000 BU)	20,380	19,430	18,460	17,490	16,510	-4.99	-4.40
GEN WITH HEAT							
YEAR END ACCTS	27,600	28,700	29,900	31,100	32,400	4.10	3.49
AVG ANNUAL ACCTS	27,050	28,150	29,300	30,500	31,750		
AVG ANNUAL USE(BU)	10,878	10,785	10,694	10,612	10,532	-0.83	-0.60
SALES (1000 BU)	294,200	303,600	313,300	323,700	334,400	3.21	2.86
SEASONAL							
YEAR END ACCTS	23	23	24	24	25	2.59	2.53
AVG ANNUAL ACCTS	23	23	24	24	25		
AVG ANNUAL USE(BU)	26,600	26,700	26,800	26,900	27,000	0.37	0.70
SALES (1000 BU)	610	610	640	650	680	3.23	2.83
BC HYDRO USE							
YEAR END ACCTS	48	49	49	50	50	0.82	1.17
AVG ANNUAL ACCTS	48	49	49	50	50		
AVG ANNUAL USE(BU)	12,600	12,700	12,800	12,900	13,000	0.79	1.12
SALES (1000 BU)	600	620	630	640	650	1.61	2.79
CNG(FIRM)							
YEAR END ACCTS	35	41	49	54	62	14.87	0.00
AVG ANNUAL ACCTS	33	38	45	52	58		
AVG ANNUAL USE(BU)	426,700	453,700	465,800	435,400	421,000	4.06	0.00
SALES (1000 BU)	14,080	17,240	20,960	22,640	24,420	20.38	0.00
TOTAL FIRM							
YEAR END ACCTS	250,406	254,113	257,922	262,028	266,337	1.53	2.21
AVG ANNUAL ACCTS	248,654	252,260	256,018	259,976	264,183		
AVG ANNUAL USE(BU)	2,433	2,444	2,458	2,465	2,471	0.42	-0.03
SALES (1000 BU)	604,900	616,570	629,390	640,840	652,890	2.00	2.26
CNG(INTERRUP.)							
YEAR END ACCTS	4	4	5	5	5	10.76	0.00
AVG ANNUAL ACCTS	4	4	5	5	5		
AVG ANNUAL USE(BU)	625,000	675,000	684,000	706,000	730,000	0.75	0.00
SALES (1000 BU)	2,500	2,700	3,420	3,530	3,650	11.58	0.00
OTHER INTERRUP.							
YEAR END ACCTS	86	87	88	89	90	1.15	1.67
AVG ANNUAL ACCTS	86	87	88	89	90		
AVG ANNUAL USE(BU)	2,311,600	2,328,700	2,345,500	2,364,000	2,382,200	0.75	0.44
SALES (1000 BU)	198,800	202,600	206,400	210,400	214,400	1.90	2.00
TOTAL INTERRUPT.							
YEAR END ACCTS	90	91	93	94	95	1.54	2.17
AVG ANNUAL ACCTS	90	91	93	94	95		
AVG ANNUAL USE(BU)	2,236,700	2,256,000	2,256,100	2,275,900	2,295,300	0.48	0.10
SALES (1000 BU)	201,300	205,300	209,820	213,930	218,050	2.03	2.15
TOTAL SALES							
YEAR END ACCTS	250,496	254,204	258,015	262,122	266,432	1.53	2.21
AVG ANNUAL ACCTS	248,744	252,351	256,111	260,070	264,278		
AVG ANNUAL USE(BU)	3,241	3,257	3,277	3,287	3,296	0.43	-0.06
SALES (1000 BU)	806,200	821,870	839,210	854,770	870,940	2.01	2.24

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-2

DETAILED FORECAST   20   FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES   PAGE 3 OF 4

1982 EDITION   REVISION# 1

NATURAL GAS

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

METROPOLITAN

	1993/94	1994/95	1995/96	1996/97	1997/98	AVG. ANNUAL GROWTH 5 YRS(%)	 16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	4,750	4,500	4,250	4,000	3,750	-5.59	-5.27
AVG ANNUAL ACCTS	4,875	4,625	4,375	4,125	3,875		
AVG ANNUAL USE(BU)	910	920	930	940	950	1.09	2.11
SALES (1000 BU)	4,440	4,250	4,070	3,880	3,680	-4.49	-3.42
RES WITH HEAT							
YEAR END ACCTS	230,800	234,400	238,100	242,000	246,000	1.59	2.14
AVG ANNUAL ACCTS	229,050	232,600	236,250	240,050	244,000		
AVG ANNUAL USE(BU)	1,189	1,182	1,176	1,169	1,163	-0.69	-0.90
SALES (1000 BU)	272,300	274,900	277,800	280,600	283,800	0.88	1.31
GEN WITHOUT HEAT							
YEAR END ACCTS	1,450	1,400	1,350	1,300	1,250	-3.58	-5.33
AVG ANNUAL ACCTS	1,475	1,425	1,375	1,325	1,275		
AVG ANNUAL USE(BU)	10,675	10,700	10,725	10,750	10,775	0.23	1.27
SALES (1000 BU)	15,750	15,250	14,750	14,240	13,740	-3.61	-4.15
GEN WITH HEAT							
YEAR END ACCTS	33,700	35,100	36,500	38,000	39,500	4.04	3.66
AVG ANNUAL ACCTS	33,050	34,400	35,800	37,250	38,750		
AVG ANNUAL USE(BU)	10,456	10,382	10,316	10,275	10,245	-0.55	-0.58
SALES (1000 BU)	345,600	357,100	369,300	382,700	397,000	3.49	3.05
SEASONAL							
YEAR END ACCTS	25	26	26	27	27	1.55	2.22
AVG ANNUAL ACCTS	25	26	26	27	27		
AVG ANNUAL USE(BU)	27,050	27,100	27,150	27,200	27,250	0.18	0.54
SALES (1000 BU)	680	700	710	730	740	1.71	2.48
BC HYDRO USE							
YEAR END ACCTS	51	51	52	52	53	1.17	1.17
AVG ANNUAL ACCTS	51	51	52	52	53		
AVG ANNUAL USE(BU)	13,050	13,100	13,150	13,200	13,250	0.38	0.89
SALES (1000 BU)	670	670	680	690	700	1.49	2.39
CNG(FIRM)							
YEAR END ACCTS	68	74	81	88	94	8.68	0.00
AVG ANNUAL ACCTS	65	71	78	85	91		
AVG ANNUAL USE(BU)	405,500	400,600	393,100	388,900	391,400	-1.45	0.00
SALES (1000 BU)	26,360	28,440	30,660	33,060	35,620	7.84	0.00
TOTAL FIRM							
YEAR END ACCTS	270,844	275,551	280,359	285,467	290,674	1.76	2.07
AVG ANNUAL ACCTS	268,591	273,198	277,956	282,914	288,071		
AVG ANNUAL USE(BU)	2,479	2,494	2,511	2,530	2,552	0.65	0.18
SALES (1000 BU)	665,800	681,310	697,970	715,900	735,280	2.41	2.31
CNG(INTERRUP.)							
YEAR END ACCTS	6	6	6	6	6	3.71	0.00
AVG ANNUAL ACCTS	6	6	6	6	6		
AVG ANNUAL USE(BU)	631,700	653,300	678,300	705,000	733,300	0.09	0.00
SALES (1000 BU)	3,790	3,920	4,070	4,230	4,400	3.81	0.00
OTHER INTERRUP.							
YEAR END ACCTS	91	92	93	94	95	1.09	1.49
AVG ANNUAL ACCTS	91	92	93	94	95		
AVG ANNUAL USE(BU)	2,398,900	2,415,200	2,432,300	2,450,000	2,467,400	0.71	0.52
SALES (1000 BU)	218,300	222,200	226,200	230,300	234,400	1.80	1.93
TOTAL INTERRUPT.							
YEAR END ACCTS	97	98	99	100	101	1.23	1.88
AVG ANNUAL ACCTS	97	98	99	106	101		
AVG ANNUAL USE(BU)	2,289,600	2,307,300	2,326,000	2,345,300	2,364,400	0.59	0.26
SALES (1000 BU)	222,090	226,120	230,270	234,530	238,800	1.83	2.05
TOTAL SALES							
YEAR END ACCTS	270,941	275,649	280,458	285,567	290,775	1.76	2.07
AVG ANNUAL ACCTS	268,688	273,296	278,055	283,014	288,172		
AVG ANNUAL USE(BU)	3,305	3,320	3,338	3,358	3,380	0.50	0.12
SALES (1000 BU)	887,890	907,430	928,240	950,430	974,080	2.26	2.24

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-2

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

METROPOLITAN

						AVG. ANNUAL GROWTH	
	1998/99	1999/00	2000/01	2001/02	2002/03	5 YRS(%)	21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	3,550	3,350	3,150	2,950	2,750	-6.01	-5.45
AVG ANNUAL ACCTS	3,650	3,450	3,250	3,050	2,850		
AVG ANNUAL USE(BU)	955	960	965	970	975	0.52	1.73
SALES (1000 BU)	3,490	3,310	3,140	2,960	2,780	-5.45	-3.91
RES WITH HEAT							
YEAR END ACCTS	250,100	254,300	258,600	262,900	267,300	1.67	2.03
AVG ANNUAL ACCTS	248,050	252,200	256,450	260,750	265,100		
AVG ANNUAL USE(BU)	1,157	1,151	1,144	1,139	1,133	-0.52	-0.81
SALES (1000 BU)	287,000	290,300	293,400	297,000	300,400	1.14	1.27
GEN WITHOUT HEAT							
YEAR END ACCTS	1,225	1,200	1,175	1,150	1,125	-2.09	-4.57
AVG ANNUAL ACCTS	1,240	1,215	1,190	1,165	1,140		
AVG ANNUAL USE(BU)	10,795	10,815	10,835	10,855	10,875	0.18	1.01
SALES (1000 BU)	13,390	13,140	12,890	12,650	12,400	-2.03	-3.65
GEN WITH HEAT							
YEAR END ACCTS	41,100	42,700	44,400	46,100	47,900	3.93	3.73
AVG ANNUAL ACCTS	40,300	41,900	43,550	45,250	47,000		
AVG ANNUAL USE(BU)	10,209	10,178	10,147	10,120	10,091	-0.30	-0.52
SALES (1000 BU)	411,400	426,500	441,900	457,900	474,300	3.62	3.19
SEASONAL							
YEAR END ACCTS	28	28	29	29	30	2.13	2.20
AVG ANNUAL ACCTS	28	28	29	29	30		
AVG ANNUAL USE(BU)	27,275	27,300	27,325	27,350	27,375	0.09	0.43
SALES (1000 BU)	760	760	790	790	820	2.07	2.38
BC HYDRO USE							
YEAR END ACCTS	53	54	54	55	55	0.74	1.07
AVG ANNUAL ACCTS	53	54	54	55	55		
AVG ANNUAL USE(BU)	13,275	13,300	13,325	13,350	13,375	0.19	0.72
SALES (1000 BU)	700	720	720	730	740	1.12	2.08
CNG(FIRM)							
YEAR END ACCTS	100	106	112	119	124	5.70	0.00
AVG ANNUAL ACCTS	97	103	109	116	122		
AVG ANNUAL USE(BU)	395,600	401,300	408,350	407,000	410,500	0.96	0.00
SALES (1000 BU)	38,370	41,330	44,510	47,210	50,080	7.05	0.00
TOTAL FIRM							
YEAR END ACCTS	296,156	301,738	307,520	313,303	319,284	1.90	2.03
AVG ANNUAL ACCTS	293,418	298,950	304,632	310,415	316,297		
AVG ANNUAL USE(BU)	2,573	2,596	2,617	2,639	2,661	0.84	0.34
SALES (1000 BU)	755,110	776,060	797,350	819,240	841,520	2.74	2.41
CNG(INTERRUP.)							
YEAR END ACCTS	7	7	7	7	8	5.92	0.00
AVG ANNUAL ACCTS	7	7	7	7	8		
AVG ANNUAL USE(BU)	657,100	685,700	715,700	748,600	683,800	-1.39	0.00
SALES (1000 BU)	4,600	4,800	5,010	5,240	5,470	4.45	0.00
OTHER INTERRUP.							
YEAR END ACCTS	97	98	99	101	102	1.43	1.47
AVG ANNUAL ACCTS	96	98	99	100	102		
AVG ANNUAL USE(BU)	2,483,300	2,473,500	2,490,900	2,507,000	2,500,000	0.26	0.46
SALES (1000 BU)	238,400	242,400	246,600	250,700	255,000	1.70	1.88
TOTAL INTERRUPT.							
YEAR END ACCTS	104	105	106	108	110	1.72	1.84
AVG ANNUAL ACCTS	103	105	106	107	110		
AVG ANNUAL USE(BU)	2,359,200	2,354,300	2,373,700	2,392,000	2,367,900	0.03	0.20
SALES (1000 BU)	243,000	247,200	251,610	255,940	260,470	1.75	1.98
TOTAL SALES							
YEAR END ACCTS	296,260	301,843	307,626	313,411	319,394	1.90	2.03
AVG ANNUAL ACCTS	293,521	299,055	304,738	310,522	316,407		
AVG ANNUAL USE(BU)	3,400	3,422	3,442	3,462	3,483	0.60	0.23
SALES (1000 BU)	998,110	1,023,260	1,048,960	1,075,180	1,101,990	2.50	2.31

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-3

N A T U R A L   G A S

DETAILED FORECAST   20   FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES   PAGE 1 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION   REVISION# 1   FRASER VALLEY

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	1,185	1,185	1,250	1,300	1,350	1,400	1,450	1,500	4.01
AVG ANNUAL ACCTS	1,173	1,173	1,220	1,275	1,325	1,375	1,425	1,475	
AVG ANNUAL USE(BU)	956	900	910	920	930	940	945	950	0.91
SALES (1000 BU)	1,121	1,060	1,110	1,170	1,230	1,290	1,350	1,400	4.75
RES WITH HEAT									
YEAR END ACCTS	106,524	106,524	110,100	114,400	118,900	123,500	128,300	133,200	3.79
AVG ANNUAL ACCTS	104,568	104,568	108,300	112,250	116,650	121,200	125,900	130,750	
AVG ANNUAL USE(BU)	1,212	1,225	1,223	1,221	1,205	1,187	1,170	1,154	-0.99
SALES (1000 BU)	126,707	128,100	132,500	137,100	140,600	143,900	147,300	150,900	2.77
GEN WITHOUT HEAT									
YEAR END ACCTS	347	347	350	355	360	365	370	375	1.30
AVG ANNUAL ACCTS	345	345	350	355	360	365	370	375	
AVG ANNUAL USE(BU)	28,965	31,250	30,000	31,800	33,500	33,900	34,250	34,500	1.66
SALES (1000 BU)	9,993	10,780	10,500	11,290	12,060	12,370	12,670	12,940	3.09
GEN WITH HEAT									
YEAR END ACCTS	9,696	9,696	10,200	10,700	11,300	12,100	13,100	14,100	6.44
AVG ANNUAL ACCTS	9,222	9,222	9,950	10,450	11,000	11,700	12,600	13,600	
AVG ANNUAL USE(BU)	7,737	7,800	7,516	7,832	8,054	8,026	7,991	7,977	0.37
SALES (1000 BU)	71,355	71,920	74,800	81,800	88,600	93,900	100,700	108,500	7.09
SEASONAL									
YEAR END ACCTS	21	21	20	20	20	21	21	21	0.00
AVG ANNUAL ACCTS	22	22	21	20	20	21	21	21	
AVG ANNUAL USE(BU)	28,636	32,000	31,000	30,000	29,500	29,000	28,700	28,500	-1.91
SALES (1000 BU)	630	700	650	600	590	610	600	600	-2.54
BC HYDRO USE									
YEAR END ACCTS	32	32	32	33	33	33	34	34	1.02
AVG ANNUAL ACCTS	32	32	32	33	33	33	34	34	
AVG ANNUAL USE(BU)	11,840	11,300	11,250	11,200	11,150	11,100	11,050	11,000	-0.45
SALES (1000 BU)	379	360	360	370	370	370	380	370	0.46
CNG(FIRM)									
YEAR END ACCTS			1	4	8	11	15	18	999.00
AVG ANNUAL ACCTS			1	3	6	10	13	17	
AVG ANNUAL USE(BU)			10,000	36,700	58,300	138,000	252,300	341,200	999.00
SALES (1000 BU)			10	110	350	1,380	3,280	5,800	0.00
TOTAL FIRM									
YEAR END ACCTS	117,805	117,805	121,953	126,812	131,971	137,430	143,290	149,248	4.02
AVG ANNUAL ACCTS	115,362	115,362	119,874	124,386	129,394	134,704	140,363	146,272	
AVG ANNUAL USE(BU)	1,822	1,846	1,835	1,869	1,884	1,884	1,897	1,918	0.64
SALES (1000 BU)	210,185	212,920	219,930	232,440	243,800	253,820	266,280	280,510	4.70
CNG(INTERRUP.)									
YEAR END ACCTS			1	1	1	1	1	1	999.00
AVG ANNUAL ACCTS			1	1	1	1	1	1	
AVG ANNUAL USE(BU)			40,000	220,000	580,000	770,000	810,000	900,000	999.00
SALES (1000 BU)			40	220	580	770	810	900	0.00
OTHER INTERRUP.									
YEAR END ACCTS	20	20	19	19	20	20	21	21	0.82
AVG ANNUAL ACCTS	20	20	20	19	20	20	21	21	
AVG ANNUAL USE(BU)	1,722,050	2,122,800	1,915,000	2,057,900	1,990,000	2,030,000	1,976,200	2,014,300	-0.87
SALES (1000 BU)	34,441	42,456	38,300	39,100	39,800	40,600	41,500	42,300	-0.06
TOTAL INTERRUPT.									
YEAR END ACCTS	20	20	20	20	21	21	22	22	1.60
AVG ANNUAL ACCTS	20	20	21	20	21	21	22	22	
AVG ANNUAL USE(BU)	1,722,100	2,122,800	1,825,700	1,966,000	1,922,900	1,970,000	1,923,200	1,963,600	-1.29
SALES (1000 BU)	34,441	42,456	38,340	39,320	40,380	41,370	42,310	43,200	0.29
TOTAL SALES									
YEAR END ACCTS	117,825	117,825	121,973	126,832	131,992	137,451	143,312	149,270	4.02
AVG ANNUAL ACCTS	115,382	115,382	119,895	124,406	129,415	134,725	140,385	146,294	
AVG ANNUAL USE(BU)	2,120	2,213	2,154	2,184	2,196	2,191	2,198	2,213	0.00
SALES (1000 BU)	244,626	255,376	258,270	271,760	284,180	295,190	308,590	323,710	4.03

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-3

DETAILED FORECAST

1982 EDITION REVISION# 1

NATURAL GAS

20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

FRASER VALLEY

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	1,550	1,600	1,650	1,700	1,750	3.13	3.61
AVG ANNUAL ACCTS	1,525	1,575	1,625	1,675	1,725		
AVG ANNUAL USE(BU)	952	954	956	958	960	0.21	0.59
SALES (1000 BU)	1,450	1,500	1,550	1,600	1,660	3.47	4.16
RES WITH HEAT							
YEAR END ACCTS	138,200	143,400	148,600	154,000	159,400	3.66	3.73
AVG ANNUAL ACCTS	135,700	140,800	146,000	151,300	156,700		
AVG ANNUAL USE(BU)	1,137	1,122	1,108	1,094	1,085	-1.23	-1.10
SALES (1000 BU)	154,300	158,000	161,800	165,500	170,000	2.41	2.61
GEN WITHOUT HEAT							
YEAR END ACCTS	380	385	390	395	400	1.30	1.30
AVG ANNUAL ACCTS	380	385	390	395	400		
AVG ANNUAL USE(BU)	34,700	34,900	35,100	35,300	35,500	0.57	1.17
SALES (1000 BU)	13,190	13,440	13,690	13,940	14,200	1.88	2.54
GEN WITH HEAT							
YEAR END ACCTS	15,200	16,300	17,500	18,700	20,000	7.24	6.80
AVG ANNUAL ACCTS	14,650	15,750	16,900	18,100	19,350		
AVG ANNUAL USE(BU)	7,944	7,927	7,915	7,916	7,919	-0.15	0.14
SALES (1000 BU)	116,400	124,900	133,800	143,300	153,200	7.14	7.12
SEASONAL							
YEAR END ACCTS	22	22	22	23	23	1.84	0.83
AVG ANNUAL ACCTS	22	22	22	23	23		
AVG ANNUAL USE(BU)	28,300	28,100	27,900	27,700	27,500	-0.71	-1.37
SALES (1000 BU)	620	620	610	640	630	0.98	-0.95
BC HYDRO USE							
YEAR END ACCTS	34	35	35	35	36	1.15	1.08
AVG ANNUAL ACCTS	34	35	35	35	36		
AVG ANNUAL USE(BU)	10,950	10,900	10,850	10,800	10,750	-0.46	-0.45
SALES (1000 BU)	370	380	380	380	390	1.06	0.73
CNG(FIRM)							
YEAR END ACCTS	22	26	29	33	37	15.50	0.00
AVG ANNUAL ACCTS	20	24	28	31	35		
AVG ANNUAL USE(BU)	422,000	431,300	448,900	438,100	418,900	4.19	0.00
SALES (1000 BU)	8,440	10,350	12,570	13,580	14,660	20.38	0.00
TOTAL FIRM							
YEAR END ACCTS	155,408	161,768	168,226	174,886	181,646	4.01	4.02
AVG ANNUAL ACCTS	152,331	158,591	165,000	171,559	178,269		
AVG ANNUAL USE(BU)	1,935	1,950	1,966	1,976	1,990	0.74	0.69
SALES (1000 BU)	294,770	309,190	324,400	338,940	354,740	4.81	4.75
CNG(INTERRUP.)							
YEAR END ACCTS	2	2	2	3	3	24.57	0.00
AVG ANNUAL ACCTS	2	2	2	3	3		
AVG ANNUAL USE(BU)	535,000	580,000	735,000	503,300	523,300	-10.28	0.00
SALES (1000 BU)	1,070	1,160	1,470	1,510	1,570	11.77	0.00
OTHER INTERRUP.							
YEAR END ACCTS	22	22	22	23	23	1.84	1.28
AVG ANNUAL ACCTS	22	22	22	23	23		
AVG ANNUAL USE(BU)	1,959,100	1,995,500	2,036,400	1,982,600	2,021,700	0.07	-0.44
SALES (1000 BU)	43,100	43,900	44,800	45,600	46,500	1.91	0.83
TOTAL INTERRUPT.							
YEAR END ACCTS	24	24	24	26	26	3.40	2.41
AVG ANNUAL ACCTS	24	24	24	26	26		
AVG ANNUAL USE(BU)	1,840,400	1,877,500	1,927,900	1,811,900	1,848,800	-1.20	-1.25
SALES (1000 BU)	44,170	45,060	46,270	47,110	48,070	2.16	1.14
TOTAL SALES							
YEAR END ACCTS	155,432	161,792	168,250	174,912	181,672	4.01	4.01
AVG ANNUAL ACCTS	152,355	158,615	165,024	171,585	178,295		
AVG ANNUAL USE(BU)	2,225	2,233	2,246	2,250	2,259	0.41	0.19
SALES (1000 BU)	338,940	354,250	370,670	386,050	402,810	4.47	4.23

NOTES:
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4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-3

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 3 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

FRASER VALLEY

	1993/94	1994/95	1995/96	1996/97	1997/98	AVG. ANNUAL GROWTH 5 YRS(%)	16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	1,800	1,850	1,900	1,950	2,000	2.71	3.33
AVG ANNUAL ACCTS	1,775	1,825	1,875	1,925	1,975		
AVG ANNUAL USE(BU)	961	962	963	964	965	0.10	0.44
SALES (1000 BU)	1,710	1,760	1,810	1,860	1,910	2.85	3.75
RES WITH HEAT							
YEAR END ACCTS	164,900	170,600	176,400	182,300	188,300	3.39	3.62
AVG ANNUAL ACCTS	162,150	167,750	173,500	179,350	185,300		
AVG ANNUAL USE(BU)	1,076	1,067	1,059	1,052	1,044	-0.77	-0.99
SALES (1000 BU)	174,500	179,000	183,700	188,700	193,500	2.62	2.61
GEN WITHOUT HEAT							
YEAR END ACCTS	405	410	415	420	425	1.22	1.28
AVG ANNUAL ACCTS	405	410	415	420	425		
AVG ANNUAL USE(BU)	35,600	35,700	35,800	35,900	36,000	0.28	0.89
SALES (1000 BU)	14,420	14,640	14,860	15,080	15,300	1.50	2.21
GEN WITH HEAT							
YEAR END ACCTS	21,300	22,700	24,100	25,600	27,100	6.26	6.63
AVG ANNUAL ACCTS	20,650	22,000	23,400	24,850	26,350		
AVG ANNUAL USE(BU)	7,909	7,900	7,900	7,902	7,910	-0.02	0.09
SALES (1000 BU)	163,300	173,800	184,900	196,400	208,400	6.35	6.88
SEASONAL							
YEAR END ACCTS	23	24	24	24	25	1.68	1.10
AVG ANNUAL ACCTS	23	24	24	24	25		
AVG ANNUAL USE(BU)	27,400	27,300	27,200	27,100	27,000	-0.37	-1.06
SALES (1000 BU)	630	660	650	650	680	1.54	-0.18
BC HYDRO USE							
YEAR END ACCTS	36	36	37	37	37	0.55	0.91
AVG ANNUAL ACCTS	36	36	37	37	37		
AVG ANNUAL USE(BU)	10,725	10,700	10,675	10,650	10,625	-0.23	-0.38
SALES (1000 BU)	390	390	390	390	390	0.00	0.50
CNG(FIRM)							
YEAR END ACCTS	41	45	49	53	57	9.03	0.00
AVG ANNUAL ACCTS	39	43	47	51	55		
AVG ANNUAL USE(BU)	405,400	396,700	391,500	388,800	388,700	-1.49	0.00
SALES (1000 BU)	15,810	17,060	18,400	19,830	21,380	7.84	0.00
TOTAL FIRM							
YEAR END ACCTS	188,505	195,665	202,925	210,384	217,944	3.71	3.92
AVG ANNUAL ACCTS	185,078	192,088	199,298	206,657	214,167		
AVG ANNUAL USE(BU)	2,003	2,016	2,031	2,046	2,062	0.71	0.69
SALES (1000 BU)	370,760	387,310	404,710	422,910	441,560	4.48	4.66
CNG(INTERRUP.)							
YEAR END ACCTS	3	3	3	3	3	0.00	0.00
AVG ANNUAL ACCTS	3	3	3	3	3		
AVG ANNUAL USE(BU)	540,000	560,000	580,000	603,300	630,000	3.78	0.00
SALES (1000 BU)	1,620	1,680	1,740	1,810	1,890	3.78	0.00
OTHER INTERRUP.							
YEAR END ACCTS	23	24	24	25	25	1.68	1.40
AVG ANNUAL ACCTS	23	24	24	25	25		
AVG ANNUAL USE(BU)	2,056,500	2,008,300	2,045,800	1,996,000	2,032,000	0.10	-0.27
SALES (1000 BU)	47,300	48,200	49,100	49,900	50,800	1.78	1.13
TOTAL INTERRUPT.							
YEAR END ACCTS	26	27	27	28	28	1.49	2.13
AVG ANNUAL ACCTS	26	27	27	28	28		
AVG ANNUAL USE(BU)	1,881,500	1,847,400	1,883,000	1,846,800	1,881,800	0.35	-0.75
SALES (1000 BU)	48,920	49,880	50,840	51,710	52,690	1.85	1.36
TOTAL SALES							
YEAR END ACCTS	188,531	195,692	202,952	210,412	217,972	3.71	3.92
AVG ANNUAL ACCTS	185,104	192,115	199,325	206,685	214,195		
AVG ANNUAL USE(BU)	2,267	2,276	2,285	2,296	2,307	0.42	0.26
SALES (1000 BU)	419,680	437,190	455,550	474,620	494,250	4.18	4.21

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-3

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR PROBABLE PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

FRASER VALLEY

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	2,050	2,100	2,150	2,200	2,250	2.38	3.10
AVG ANNUAL ACCTS	2,025	2,075	2,125	2,175	2,225		
AVG ANNUAL USE(BU)	965	965	965	965	965	0.00	0.33
SALES (1000 BU)	1,950	2,000	2,050	2,100	2,150	2.40	3.42
RES WITH HEAT							
YEAR END ACCTS	194,400	200,700	207,100	213,100	219,200	3.09	3.50
AVG ANNUAL ACCTS	191,350	197,550	203,900	210,100	216,150		
AVG ANNUAL USE(BU)	1,037	1,030	1,024	1,017	1,011	-0.64	-0.91
SALES (1000 BU)	198,400	203,500	208,800	213,700	218,500	2.46	2.58
GEN WITHOUT HEAT							
YEAR END ACCTS	430	435	440	445	450	1.15	1.25
AVG ANNUAL ACCTS	430	435	440	445	450		
AVG ANNUAL USE(BU)	36,050	36,100	36,150	36,200	36,250	0.14	0.71
SALES (1000 BU)	15,500	15,700	15,910	16,110	16,310	1.29	1.99
GEN WITH HEAT							
YEAR END ACCTS	28,600	30,200	31,800	33,400	35,000	5.25	6.30
AVG ANNUAL ACCTS	27,850	29,400	31,000	32,600	34,200		
AVG ANNUAL USE(BU)	7,909	7,907	7,910	7,917	7,932	0.06	0.08
SALES (1000 BU)	220,300	232,500	245,200	258,100	271,300	5.42	6.53
SEASONAL							
YEAR END ACCTS	25	25	26	26	26	0.79	1.02
AVG ANNUAL ACCTS	25	25	26	26	26		
AVG ANNUAL USE(BU)	26,950	26,900	26,850	26,800	26,750	-0.19	-0.85
SALES (1000 BU)	670	670	700	700	700	0.58	0.00
BC HYDRO USE							
YEAR END ACCTS	38	38	39	39	40	1.57	1.07
AVG ANNUAL ACCTS	38	38	39	39	40		
AVG ANNUAL USE(BU)	10,610	10,595	10,580	10,565	10,550	-0.14	-0.33
SALES (1000 BU)	400	400	410	410	420	1.49	0.74
CNG(FIRM)							
YEAR END ACCTS	60	64	68	71	74	5.36	0.00
AVG ANNUAL ACCTS	59	62	66	70	73		
AVG ANNUAL USE(BU)	390,200	400,000	404,700	404,600	411,500	1.15	0.00
SALES (1000 BU)	23,020	24,800	26,710	28,320	30,040	7.04	0.00
TOTAL FIRM							
YEAR END ACCTS	225,603	233,562	241,623	249,281	257,040	3.35	3.79
AVG ANNUAL ACCTS	221,777	229,585	237,596	245,455	253,164		
AVG ANNUAL USE(BU)	2,075	2,089	2,103	2,116	2,131	0.66	0.69
SALES (1000 BU)	460,240	479,570	499,780	519,440	539,420	4.08	4.53
CNG(INTERRUP.)							
YEAR END ACCTS	3	3	3	3	4	5.92	0.00
AVG ANNUAL ACCTS	3	3	3	3	4		
AVG ANNUAL USE(BU)	656,700	686,700	716,700	750,000	585,000	-1.47	0.00
SALES (1000 BU)	1,970	2,060	2,150	2,250	2,340	4.36	0.00
OTHER INTERRUP.							
YEAR END ACCTS	25	26	26	27	27	1.55	1.44
AVG ANNUAL ACCTS	25	26	26	27	27		
AVG ANNUAL USE(BU)	2,068,000	2,019,200	2,053,800	2,011,100	2,048,100	0.16	-0.17
SALES (1000 BU)	51,700	52,500	53,400	54,300	55,300	1.71	1.27
TOTAL INTERRUPT.							
YEAR END ACCTS	28	29	29	30	31	2.06	2.11
AVG ANNUAL ACCTS	28	29	29	30	31		
AVG ANNUAL USE(BU)	1,916,800	1,881,400	1,915,500	1,885,000	1,859,400	-0.24	-0.63
SALES (1000 BU)	53,670	54,560	55,550	56,550	57,640	1.81	1.47
TOTAL SALES							
YEAR END ACCTS	225,631	233,591	241,652	249,311	257,071	3.35	3.78
AVG ANNUAL ACCTS	221,805	229,614	237,625	245,485	253,195		
AVG ANNUAL USE(BU)	2,317	2,326	2,337	2,346	2,358	0.44	0.30
SALES (1000 BU)	513,910	534,130	555,330	575,990	597,060	3.85	4.13

NOTES:
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4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-4

DETAILED FORECAST

1982 EDITION REVISION# 1

NATURAL GAS

20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 1 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

LOWER MAINLAND

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	10,098	10,098	9,750	9,400	9,050	8,700	8,350	8,000	-3.81
AVG ANNUAL ACCTS	10,619	10,619	9,925	9,575	9,225	8,875	8,525	8,175	
AVG ANNUAL USE(BU)	717	704	748	768	788	809	829	848	3.15
SALES (1000 BU)	7,611	7,480	7,420	7,350	7,270	7,180	7,070	6,930	-1.26
RES WITH HEAT									
YEAR END ACCTS	281,770	281,770	293,400	305,800	318,200	330,600	341,700	350,900	3.72
AVG ANNUAL ACCTS	275,941	275,941	287,550	299,600	312,000	324,400	336,150	346,300	
AVG ANNUAL USE(BU)	1,284	1,300	1,300	1,299	1,292	1,285	1,277	1,270	-0.39
SALES (1000 BU)	354,293	358,600	373,700	389,300	403,000	416,700	429,300	439,800	3.46
GEN WITHOUT HEAT									
YEAR END ACCTS	3,352	3,352	3,150	2,955	2,760	2,615	2,470	2,375	-5.58
AVG ANNUAL ACCTS	3,423	3,423	3,255	3,055	2,860	2,690	2,545	2,425	
AVG ANNUAL USE(BU)	10,830	11,065	11,080	12,005	12,915	13,370	13,780	14,130	4.16
SALES (1000 BU)	37,066	37,870	36,060	36,670	36,930	35,970	35,070	34,260	-1.66
GEN WITH HEAT									
YEAR END ACCTS	31,910	31,910	32,800	34,300	36,000	38,100	40,600	43,200	5.18
AVG ANNUAL ACCTS	31,032	31,032	32,355	33,550	35,150	37,050	39,350	41,900	
AVG ANNUAL USE(BU)	10,120	10,220	9,720	10,040	10,310	10,280	10,240	10,210	-0.02
SALES (1000 BU)	313,897	317,270	314,400	336,800	362,300	380,800	403,000	427,800	5.11
SEASONAL									
YEAR END ACCTS	40	40	40	40	41	42	43	43	1.21
AVG ANNUAL ACCTS	42	42	41	40	41	42	43	43	
AVG ANNUAL USE(BU)	26,980	28,570	28,290	28,000	27,800	27,620	27,440	27,440	-0.67
SALES (1000 BU)	1,133	1,200	1,160	1,120	1,140	1,160	1,180	1,180	-0.28
BC HYDRO USE									
YEAR END ACCTS	76	76	77	79	79	80	81	82	1.27
AVG ANNUAL ACCTS	74	74	77	79	79	80	81	82	
AVG ANNUAL USE(BU)	11,530	11,350	11,560	11,650	11,770	11,880	11,850	11,830	0.69
SALES (1000 BU)	853	840	890	920	930	950	960	970	2.43
CNG(FIRM)									
YEAR END ACCTS			3	11	20	29	39	49	999.00
AVG ANNUAL ACCTS			2	8	16	25	34	45	
AVG ANNUAL USE(BU)			15,000	36,300	58,100	146,800	257,600	343,600	999.00
SALES (1000 BU)			30	290	930	3,670	8,760	15,460	0.00
TOTAL FIRM									
YEAR END ACCTS	327,246	327,246	339,220	352,585	366,150	380,166	393,283	404,649	3.60
AVG ANNUAL ACCTS	321,131	321,131	333,205	345,907	359,371	373,162	386,728	398,970	
AVG ANNUAL USE(BU)	2,226	2,252	2,202	2,233	2,261	2,268	2,289	2,322	0.51
SALES (1000 BU)	714,853	723,260	733,660	772,450	812,500	846,430	885,340	926,400	4.21
CNG(INTERRUP.)									
YEAR END ACCTS			2	2	3	4	4	4	999.00
AVG ANNUAL ACCTS			2	2	3	4	4	4	
AVG ANNUAL USE(BU)			65,000	360,000	643,300	642,500	677,500	752,500	999.00
SALES (1000 BU)			130	720	1,930	2,570	2,710	3,010	0.00
OTHER INTERRUP.									
YEAR END ACCTS	95	95	101	102	104	107	109	112	2.78
AVG ANNUAL ACCTS	96	96	98	102	103	106	108	111	
AVG ANNUAL USE(BU)	2,342,100	2,239,200	2,193,900	2,156,900	2,184,500	2,171,700	2,179,600	2,170,300	-0.52
SALES (1000 BU)	224,844	214,965	215,000	220,000	225,000	230,200	235,400	240,900	1.92
TOTAL INTERRUPT.									
YEAR END ACCTS	95	95	103	104	107	111	113	116	3.38
AVG ANNUAL ACCTS	96	96	100	104	106	110	112	115	
AVG ANNUAL USE(BU)	2,342,100	2,239,200	2,151,300	2,122,300	2,140,800	2,116,100	2,126,000	2,121,000	-0.90
SALES (1000 BU)	224,844	214,965	215,130	220,720	226,930	232,770	238,110	243,910	2.13
TOTAL SALES									
YEAR END ACCTS	327,341	327,341	339,323	352,689	366,257	380,277	393,396	404,765	3.60
AVG ANNUAL ACCTS	321,227	321,227	333,305	346,011	359,477	373,272	386,840	399,085	
AVG ANNUAL USE(BU)	2,925	2,921	2,847	2,870	2,892	2,891	2,904	2,932	0.06
SALES (1000 BU)	939,697	938,225	948,790	993,170	1,039,430	1,079,200	1,123,450	1,170,310	3.75

NOTES:
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5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-4

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1
LOWER MAINLAND

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH	
						5 YRS(%)	11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	7,750	7,500	7,250	7,000	6,750	-3.34	-3.60
AVG ANNUAL ACCTS	7,875	7,625	7,375	7,125	6,875		
AVG ANNUAL USE(BU)	861	875	888	901	915	1.53	2.41
SALES (1000 BU)	6,780	6,670	6,550	6,420	6,290	-1.92	-1.56
RES WITH HEAT							
YEAR END ACCTS	359,600	368,700	377,800	387,700	397,700	2.54	3.18
AVG ANNUAL ACCTS	355,250	364,150	373,250	382,750	392,700		
AVG ANNUAL USE(BU)	1,260	1,251	1,242	1,233	1,225	-0.72	-0.54
SALES (1000 BU)	447,700	455,400	463,500	471,900	481,000	1.81	2.71
GEN WITHOUT HEAT							
YEAR END ACCTS	2,280	2,185	2,090	1,995	1,900	-4.36	-5.03
AVG ANNUAL ACCTS	2,330	2,235	2,140	2,045	1,950		
AVG ANNUAL USE(BU)	14,410	14,705	15,025	15,370	15,750	2.19	3.26
SALES (1000 BU)	33,570	32,870	32,150	31,430	30,710	-2.16	-1.89
GEN WITH HEAT							
YEAR END ACCTS	46,000	48,800	51,800	54,800	58,000	6.07	5.58
AVG ANNUAL ACCTS	44,600	47,400	50,300	53,300	56,400		
AVG ANNUAL USE(BU)	10,180	10,160	10,150	10,150	10,150	-0.12	-0.06
SALES (1000 BU)	454,000	481,800	510,600	541,000	572,600	6.00	5.51
SEASONAL							
YEAR END ACCTS	45	45	46	47	48	2.22	1.67
AVG ANNUAL ACCTS	45	45	46	47	48		
AVG ANNUAL USE(BU)	27,330	27,330	27,170	27,450	27,290	-0.11	-0.42
SALES (1000 BU)	1,230	1,230	1,250	1,290	1,310	2.11	0.80
BC HYDRO USE							
YEAR END ACCTS	82	84	84	85	86	0.96	1.13
AVG ANNUAL ACCTS	82	84	84	85	86		
AVG ANNUAL USE(BU)	11,830	11,900	12,020	12,000	12,090	0.44	0.58
SALES (1000 BU)	970	1,000	1,010	1,020	1,040	1.40	1.96
CNG(FIRM)							
YEAR END ACCTS	57	67	78	87	99	15.10	0.00
AVG ANNUAL ACCTS	53	62	73	83	93		
AVG ANNUAL USE(BU)	424,900	445,000	459,300	436,400	420,200	4.11	0.00
SALES (1000 BU)	22,520	27,590	33,530	36,220	39,080	20.38	0.00
TOTAL FIRM							
YEAR END ACCTS	415,814	427,381	439,148	451,714	464,583	2.80	3.24
AVG ANNUAL ACCTS	410,235	421,601	433,268	445,435	458,152		
AVG ANNUAL USE(BU)	2,357	2,387	2,420	2,445	2,471	1.25	0.85
SALES (1000 BU)	966,770	1,006,560	1,048,590	1,089,280	1,132,030	4.09	4.16
CNG(INTERRUP.)							
YEAR END ACCTS	6	6	7	8	8	14.87	0.00
AVG ANNUAL ACCTS	6	6	7	8	8		
AVG ANNUAL USE(BU)	595,000	643,300	698,600	630,000	652,500	-2.81	0.00
SALES (1000 BU)	3,570	3,860	4,890	5,040	5,220	11.64	0.00
OTHER INTERRUP.							
YEAR END ACCTS	114	117	119	122	125	2.22	2.53
AVG ANNUAL ACCTS	113	116	118	121	124		
AVG ANNUAL USE(BU)	2,178,800	2,169,000	2,179,700	2,171,900	2,166,100	-0.04	-0.30
SALES (1000 BU)	246,200	251,600	257,200	262,800	268,600	2.20	2.05
TOTAL INTERRUPT.							
YEAR END ACCTS	120	123	126	130	133	2.77	3.11
AVG ANNUAL ACCTS	119	122	125	129	132		
AVG ANNUAL USE(BU)	2,098,900	2,093,900	2,096,700	2,076,300	2,074,400	-0.44	-0.69
SALES (1000 BU)	249,770	255,460	262,090	267,840	273,820	2.34	2.22
TOTAL SALES							
YEAR END ACCTS	415,934	427,504	439,274	451,844	464,716	2.80	3.24
AVG ANNUAL ACCTS	410,354	421,723	433,393	445,564	458,284		
AVG ANNUAL USE(BU)	2,965	2,993	3,024	3,046	3,068	0.91	0.45
SALES (1000 BU)	1,216,540	1,262,020	1,310,680	1,357,120	1,405,850	3.74	3.74

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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TABLE 9-4

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 3 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1
LOWER MAINLAND

						AVG. ANNUAL GROWTH	
	1993/94	1994/95	1995/96	1996/97	1997/98	5 YRS(%)	16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	6,550	6,350	6,150	5,950	5,750	-3.16	-3.46
AVG ANNUAL ACCTS	6,650	6,450	6,250	6,050	5,850		
AVG ANNUAL USE(BU)	925	932	941	949	956	0.88	1.93
SALES (1000 BU)	6,150	6,010	5,880	5,740	5,590	-2.33	-1.80
RES WITH HEAT							
YEAR END ACCTS	407,900	417,900	427,600	437,100	446,800	2.36	2.92
AVG ANNUAL ACCTS	402,800	412,900	422,750	432,350	441,950		
AVG ANNUAL USE(BU)	1,215	1,207	1,198	1,190	1,186	-0.65	-0.57
SALES (1000 BU)	489,600	498,200	506,500	514,500	524,300	1.74	2.40
GEN WITHOUT HEAT							
YEAR END ACCTS	1,855	1,810	1,765	1,720	1,675	-2.49	-4.24
AVG ANNUAL ACCTS	1,880	1,835	1,790	1,745	1,700		
AVG ANNUAL USE(BU)	16,050	16,290	16,540	16,800	17,080	1.63	2.75
SALES (1000 BU)	30,170	29,890	29,610	29,320	29,040	-1.11	-1.65
GEN WITH HEAT							
YEAR END ACCTS	61,200	64,600	68,000	71,600	75,200	5.33	5.50
AVG ANNUAL ACCTS	59,600	62,900	66,300	69,800	73,400		
AVG ANNUAL USE(BU)	10,150	10,150	10,160	10,170	10,180	0.06	-0.02
SALES (1000 BU)	605,000	638,500	673,500	709,600	747,200	5.47	5.50
SEASONAL							
YEAR END ACCTS	48	50	50	51	52	1.61	1.65
AVG ANNUAL ACCTS	48	50	50	51	52		
AVG ANNUAL USE(BU)	27,290	27,200	27,200	27,060	27,310	0.01	-0.28
SALES (1000 BU)	1,310	1,360	1,360	1,380	1,420	1.63	1.06
BC HYDRO USE							
YEAR END ACCTS	87	87	89	89	90	0.91	1.06
AVG ANNUAL ACCTS	87	87	89	89	90		
AVG ANNUAL USE(BU)	12,180	12,180	12,020	12,130	12,110	0.03	0.41
SALES (1000 BU)	1,060	1,060	1,070	1,080	1,090	0.94	1.64
CNG(FIRM)							
YEAR END ACCTS	109	119	130	141	151	8.81	0.00
AVG ANNUAL ACCTS	104	114	125	136	146		
AVG ANNUAL USE(BU)	405,500	399,100	392,500	388,900	390,400	-1.46	0.00
SALES (1000 BU)	42,170	45,500	49,060	52,890	57,000	7.84	0.00
TOTAL FIRM							
YEAR END ACCTS	477,749	490,916	503,784	516,651	529,718	2.66	3.06
AVG ANNUAL ACCTS	471,169	484,336	497,354	510,221	523,188		
AVG ANNUAL USE(BU)	2,495	2,520	2,547	2,576	2,610	1.10	0.93
SALES (1000 BU)	1,175,460	1,220,520	1,266,980	1,314,510	1,365,640	3.82	4.05
CNG(INTERRUP.)							
YEAR END ACCTS	9	9	9	9	9	2.38	0.00
AVG ANNUAL ACCTS	9	9	9	9	9		
AVG ANNUAL USE(BU)	601,100	622,200	645,600	671,100	698,900	1.38	0.00
SALES (1000 BU)	5,410	5,600	5,810	6,040	6,290	3.80	0.00
OTHER INTERRUP.							
YEAR END ACCTS	127	130	132	135	137	1.85	2.31
AVG ANNUAL ACCTS	126	129	131	134	136		
AVG ANNUAL USE(BU)	2,176,200	2,170,500	2,182,400	2,177,600	2,191,200	0.23	-0.14
SALES (1000 BU)	274,200	280,000	285,900	291,800	298,000	2.10	2.06
TOTAL INTERRUPT.							
YEAR END ACCTS	136	139	141	144	146	1.88	2.72
AVG ANNUAL ACCTS	135	138	140	143	145		
AVG ANNUAL USE(BU)	2,071,200	2,069,600	2,083,600	2,082,800	2,098,600	0.23	-0.40
SALES (1000 BU)	279,610	285,600	291,710	297,840	304,290	2.13	2.20
TOTAL SALES							
YEAR END ACCTS	477,885	491,055	503,925	516,795	529,864	2.66	3.06
AVG ANNUAL ACCTS	471,304	484,474	497,494	510,364	523,333		
AVG ANNUAL USE(BU)	3,087	3,109	3,133	3,159	3,191	0.79	0.55
SALES (1000 BU)	1,455,070	1,506,120	1,558,690	1,612,350	1,669,930	3.50	3.67

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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-4

N A T U R A L G A S

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

LOWER MAINLAND

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH	
						5 YRS(%)	21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	5,600	5,450	5,300	5,150	5,000	-2.76	-3.29
AVG ANNUAL ACCTS	5,675	5,525	5,375	5,225	5,075		
AVG ANNUAL USE(BU)	959	961	966	968	971	0.31	1.54
SALES (1000 BU)	5,440	5,310	5,190	5,060	4,930	-2.48	-1.97
RES WITH HEAT							
YEAR END ACCTS	456,700	467,000	477,500	488,100	498,900	2.23	2.76
AVG ANNUAL ACCTS	451,750	461,850	472,250	482,800	493,500		
AVG ANNUAL USE(BU)	1,181	1,176	1,172	1,167	1,162	-0.41	-0.53
SALES (1000 BU)	533,500	543,300	553,300	563,500	573,500	1.81	2.26
GEN WITHOUT HEAT							
YEAR END ACCTS	1,655	1,635	1,615	1,595	1,575	-1.22	-3.53
AVG ANNUAL ACCTS	1,670	1,650	1,630	1,610	1,590		
AVG ANNUAL USE(BU)	17,300	17,480	17,670	17,865	18,055	1.12	2.36
SALES (1000 BU)	28,890	28,840	28,800	28,760	28,710	-0.23	-1.31
GEN WITH HEAT							
YEAR END ACCTS	78,900	82,700	86,600	90,500	94,500	4.67	5.31
AVG ANNUAL ACCTS	77,050	80,800	84,650	88,550	92,500		
AVG ANNUAL USE(BU)	10,190	10,200	10,210	10,230	10,250	0.14	0.01
SALES (1000 BU)	784,800	823,800	864,200	905,600	947,800	4.87	5.35
SEASONAL							
YEAR END ACCTS	53	53	55	55	56	1.49	1.62
AVG ANNUAL ACCTS	53	53	55	55	56		
AVG ANNUAL USE(BU)	26,980	26,980	27,090	27,090	27,140	-0.12	-0.24
SALES (1000 BU)	1,430	1,430	1,490	1,490	1,520	1.37	1.13
BC HYDRO USE							
YEAR END ACCTS	91	92	93	94	95	1.09	1.07
AVG ANNUAL ACCTS	91	92	93	94	95		
AVG ANNUAL USE(BU)	12,090	12,170	12,150	12,130	12,210	0.16	0.35
SALES (1000 BU)	1,100	1,120	1,130	1,140	1,160	1.25	1.55
CNG(FIRM)							
YEAR END ACCTS	160	170	180	190	198	5.57	0.00
AVG ANNUAL ACCTS	156	165	175	186	195		
AVG ANNUAL USE(BU)	393,500	400,800	407,000	406,100	410,900	1.03	0.00
SALES (1000 BU)	61,390	66,130	71,220	75,530	80,120	7.05	0.00
TOTAL FIRM							
YEAR END ACCTS	543,159	557,100	571,343	585,684	600,324	2.53	2.93
AVG ANNUAL ACCTS	536,445	550,135	564,228	578,520	593,011		
AVG ANNUAL USE(BU)	2,641	2,672	2,703	2,733	2,762	1.14	0.98
SALES (1000 BU)	1,416,550	1,469,930	1,525,330	1,581,080	1,637,740	3.70	3.97
CNG(INTERRUP.)							
YEAR END ACCTS	10	10	10	10	12	5.92	0.00
AVG ANNUAL ACCTS	10	10	10	10	12		
AVG ANNUAL USE(BU)	657,000	686,000	716,000	749,000	650,800	-1.42	0.00
SALES (1000 BU)	6,570	6,860	7,160	7,490	7,810	4.42	0.00
OTHER INTERRUP.							
YEAR END ACCTS	140	142	145	147	150	1.83	2.20
AVG ANNUAL ACCTS	139	141	144	146	149		
AVG ANNUAL USE(BU)	2,187,100	2,198,600	2,195,800	2,209,600	2,208,100	0.15	-0.07
SALES (1000 BU)	304,000	310,000	316,200	322,600	329,000	2.00	2.05
TOTAL INTERRUPT.							
YEAR END ACCTS	150	152	155	157	162	2.10	2.57
AVG ANNUAL ACCTS	149	151	154	156	161		
AVG ANNUAL USE(BU)	2,084,400	2,098,400	2,099,700	2,116,000	2,092,000	-0.06	-0.32
SALES (1000 BU)	310,570	316,860	323,360	330,090	336,810	2.05	2.16
TOTAL SALES							
YEAR END ACCTS	543,309	557,252	571,498	585,841	600,486	2.53	2.93
AVG ANNUAL ACCTS	536,594	550,286	564,382	578,676	593,172		
AVG ANNUAL USE(BU)	3,219	3,247	3,276	3,303	3,329	0.85	0.62
SALES (1000 BU)	1,727,120	1,786,790	1,848,690	1,911,170	1,974,550	3.41	3.61

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-5

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 1 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1
METROPOLITAN

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	8,913	8,913	8,500	8,100	7,700	7,300	6,900	6,500	-5.13
AVG ANNUAL ACCTS	9,446	9,446	8,705	8,300	7,900	7,500	7,100	6,700	
AVG ANNUAL USE(BU)	687	680	725	745	765	785	805	825	3.27
SALES (1000 BU)	6,490	6,420	6,310	6,180	6,040	5,890	5,720	5,530	-2.46
RES WITH HEAT									
YEAR END ACCTS	175,246	175,246	181,900	189,100	196,300	203,400	209,100	212,800	3.29
AVG ANNUAL ACCTS	171,373	171,373	178,550	185,500	192,700	199,850	206,250	210,950	
AVG ANNUAL USE(BU)	1,328	1,345	1,344	1,343	1,337	1,331	1,325	1,319	-0.32
SALES (1000 BU)	227,586	230,500	240,000	249,100	257,600	266,000	273,300	278,200	3.18
GEN WITHOUT HEAT									
YEAR END ACCTS	3,005	3,005	2,800	2,600	2,400	2,250	2,100	2,000	-6.56
AVG ANNUAL ACCTS	3,078	3,078	2,905	2,700	2,500	2,325	2,175	2,050	
AVG ANNUAL USE(BU)	8,796	8,800	8,800	9,400	9,950	10,150	10,300	10,400	2.82
SALES (1000 BU)	27,073	27,090	25,560	25,380	24,870	23,600	22,400	21,320	-3.91
GEN WITH HEAT									
YEAR END ACCTS	22,214	22,214	22,600	23,500	24,500	25,700	27,100	28,500	4.24
AVG ANNUAL ACCTS	21,810	21,810	22,405	23,050	24,000	25,100	26,400	27,800	
AVG ANNUAL USE(BU)	11,121	11,250	10,694	11,038	11,330	11,283	11,233	11,189	-0.09
SALES (1000 BU)	242,542	245,350	239,600	254,400	271,900	283,200	296,600	311,100	4.04
SEASONAL									
YEAR END ACCTS	19	19	20	20	21	21	22	22	2.47
AVG ANNUAL ACCTS	20	20	20	20	21	21	22	22	
AVG ANNUAL USE(BU)	25,150	25,000	25,500	25,850	26,100	26,300	26,400	26,500	0.98
SALES (1000 BU)	503	500	510	520	550	550	580	580	2.50
BC HYDRO USE									
YEAR END ACCTS	44	44	45	46	46	47	47	48	1.46
AVG ANNUAL ACCTS	42	42	45	46	46	47	47	48	
AVG ANNUAL USE(BU)	11,297	11,500	11,800	12,000	12,200	12,300	12,400	12,500	1.40
SALES (1000 BU)	474	480	530	550	560	580	580	600	3.79
CNG(FIRM)									
YEAR END ACCTS			2	7	12	18	24	31	999.00
AVG ANNUAL ACCTS			1	5	10	15	21	28	
AVG ANNUAL USE(BU)			20,000	36,000	58,000	152,600	261,000	345,000	999.00
SALES (1000 BU)			20	180	580	2,290	5,480	9,660	0.00
TOTAL FIRM									
YEAR END ACCTS	209,441	209,441	215,867	223,373	230,979	238,736	245,293	249,901	2.99
AVG ANNUAL ACCTS	205,769	205,769	212,631	219,621	227,177	234,858	242,015	247,598	
AVG ANNUAL USE(BU)	2,453	2,480	2,410	2,442	2,474	2,479	2,498	2,532	0.35
SALES (1000 BU)	504,668	510,340	512,530	536,310	562,100	582,110	604,660	626,990	3.49
CNG(INTERRUP.)									
YEAR END ACCTS			1	1	2	3	3	3	999.00
AVG ANNUAL ACCTS			1	1	2	3	3	3	
AVG ANNUAL USE(BU)			90,000	500,000	675,000	600,000	633,300	703,300	999.00
SALES (1000 BU)			90	500	1,350	1,800	1,900	2,110	0.00
OTHER INTERRUP.									
YEAR END ACCTS	75	75	81	82	84	86	88	90	3.09
AVG ANNUAL ACCTS	76	76	78	82	83	85	87	89	
AVG ANNUAL USE(BU)	2,505,303	2,269,900	2,265,400	2,204,900	2,227,700	2,225,900	2,224,100	2,224,700	-0.33
SALES (1000 BU)	190,403	172,509	176,700	180,800	184,900	189,200	193,500	198,000	2.32
TOTAL INTERRUPT.									
YEAR END ACCTS	75	75	82	83	86	89	91	93	3.65
AVG ANNUAL ACCTS	76	76	79	83	85	88	90	92	
AVG ANNUAL USE(BU)	2,505,300	2,269,900	2,237,800	2,184,300	2,191,200	2,170,500	2,171,100	2,175,100	-0.71
SALES (1000 BU)	190,403	172,509	176,790	181,300	186,250	191,000	195,400	200,110	2.50
TOTAL SALES									
YEAR END ACCTS	209,516	209,516	215,949	223,456	231,065	238,825	245,384	249,994	2.99
AVG ANNUAL ACCTS	205,845	205,845	212,710	219,704	227,262	234,946	242,105	247,690	
AVG ANNUAL USE(BU)	3,377	3,317	3,241	3,266	3,293	3,291	3,305	3,339	0.11
SALES (1000 BU)	695,071	682,849	689,320	717,610	748,350	773,110	800,060	827,100	3.25

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-5

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1 METROPOLITAN

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	 11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	6,200	5,900	5,600	5,300	5,000	-5.11	-5.12
AVG ANNUAL ACCTS	6,350	6,050	5,750	5,450	5,150		
AVG ANNUAL USE(BU)	840	855	870	885	900	1.76	2.58
SALES (1000 BU)	5,330	5,170	5,000	4,820	4,630	-3.49	-2.93
RES WITH HEAT							
YEAR END ACCTS	215,800	219,000	222,200	225,800	229,500	1.52	2.48
AVG ANNUAL ACCTS	214,300	217,400	220,600	224,000	227,650		
AVG ANNUAL USE(BU)	1,310	1,301	1,293	1,284	1,276	-0.66	-0.48
SALES (1000 BU)	280,700	282,800	285,200	287,600	290,500	0.87	2.13
GEN WITHOUT HEAT							
YEAR END ACCTS	1,900	1,800	1,700	1,600	1,500	-5.59	-6.12
AVG ANNUAL ACCTS	1,950	1,850	1,750	1,650	1,550		
AVG ANNUAL USE(BU)	10,450	10,500	10,550	10,600	10,650	0.48	1.75
SALES (1000 BU)	20,380	19,430	18,460	17,490	16,510	-4.99	-4.40
GEN WITH HEAT							
YEAR END ACCTS	30,000	31,500	33,100	34,700	36,400	5.01	4.59
AVG ANNUAL ACCTS	29,250	30,750	32,300	33,900	35,550		
AVG ANNUAL USE(BU)	11,146	11,111	11,078	11,051	11,026	-0.29	-0.18
SALES (1000 BU)	326,000	341,700	357,800	374,600	392,000	4.73	4.35
SEASONAL							
YEAR END ACCTS	23	23	24	24	25	2.59	2.53
AVG ANNUAL ACCTS	23	23	24	24	25		
AVG ANNUAL USE(BU)	26,600	26,700	26,800	26,900	27,000	0.37	0.70
SALES (1000 BU)	610	610	640	650	680	3.23	2.83
BC HYDRO USE							
YEAR END ACCTS	48	49	49	50	50	0.82	1.17
AVG ANNUAL ACCTS	48	49	49	50	50		
AVG ANNUAL USE(BU)	12,600	12,700	12,800	12,900	13,000	0.79	1.12
SALES (1000 BU)	600	620	630	640	650	1.61	2.79
CNG(FIRM)							
YEAR END ACCTS	35	41	49	54	62	14.87	0.00
AVG ANNUAL ACCTS	33	38	45	52	58		
AVG ANNUAL USE(BU)	426,700	453,700	465,800	435,400	421,000	4.06	0.00
SALES (1000 BU)	14,080	17,240	20,960	22,640	24,420	20.38	0.00
TOTAL FIRM							
YEAR END ACCTS	254,006	258,313	262,722	267,528	272,537	1.75	2.42
AVG ANNUAL ACCTS	251,954	256,160	260,518	265,126	270,033		
AVG ANNUAL USE(BU)	2,571	2,606	2,644	2,672	2,701	1.30	0.78
SALES (1000 BU)	647,700	667,570	688,690	708,440	729,390	3.07	3.30
CNG(INTERRUP.)							
YEAR END ACCTS	4	4	5	5	5	10.76	0.00
AVG ANNUAL ACCTS	4	4	5	5	5		
AVG ANNUAL USE(BU)	625,000	675,000	684,000	706,000	730,000	0.75	0.00
SALES (1000 BU)	2,500	2,700	3,420	3,530	3,650	11.58	0.00
OTHER INTERRUP.							
YEAR END ACCTS	92	94	96	98	100	2.13	2.65
AVG ANNUAL ACCTS	91	93	95	97	99		
AVG ANNUAL USE(BU)	2,224,200	2,223,700	2,225,300	2,226,800	2,230,300	0.05	-0.16
SALES (1000 BU)	202,400	206,800	211,400	216,000	220,800	2.20	2.27
TOTAL INTERRUPT.							
YEAR END ACCTS	96	98	101	103	105	2.46	3.11
AVG ANNUAL ACCTS	95	97	100	102	104		
AVG ANNUAL USE(BU)	2,156,800	2,159,800	2,148,200	2,152,300	2,158,200	-0.16	-0.46
SALES (1000 BU)	204,900	209,500	214,820	219,530	224,450	2.32	2.42
TOTAL SALES							
YEAR END ACCTS	254,102	258,411	262,823	267,631	272,642	1.75	2.42
AVG ANNUAL ACCTS	252,049	256,257	260,618	265,228	270,137		
AVG ANNUAL USE(BU)	3,383	3,423	3,467	3,499	3,531	1.12	0.57
SALES (1000 BU)	852,600	877,070	903,510	927,970	953,840	2.89	3.09

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-5

N A T U R A L   G A S

DETAILED FORECAST   20   FISCAL YEAR   HIGH   PROJECTION OF ACCOUNTS AND SALES   PAGE 3 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION   REVISION# 1   METROPOLITAN

	1993/94	1994/95	1995/96	1996/97	1997/98	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	4,750	4,500	4,250	4,000	3,750	-5.59	-5.27
AVG ANNUAL ACCTS	4,875	4,625	4,375	4,125	3,875		
AVG ANNUAL USE(BU)	910	920	930	940	950	1.09	2.11
SALES (1000 BU)	4,440	4,250	4,070	3,880	3,680	-4.49	-3.42
RES WITH HEAT							
YEAR END ACCTS	233,300	237,200	241,200	245,400	249,700	1.70	2.24
AVG ANNUAL ACCTS	231,400	235,250	239,200	243,300	247,550		
AVG ANNUAL USE(BU)	1,266	1,257	1,248	1,239	1,236	-0.63	-0.53
SALES (1000 BU)	293,000	295,700	298,500	301,400	306,000	1.05	1.79
GEN WITHOUT HEAT							
YEAR END ACCTS	1,450	1,400	1,350	1,300	1,250	-3.58	-5.33
AVG ANNUAL ACCTS	1,475	1,425	1,375	1,325	1,275		
AVG ANNUAL USE(BU)	10,675	10,700	10,725	10,750	10,775	0.23	1.27
SALES (1000 BU)	15,750	15,250	14,750	14,240	13,740	-3.61	-4.15
GEN WITH HEAT							
YEAR END ACCTS	38,100	39,900	41,700	43,600	45,500	4.56	4.58
AVG ANNUAL ACCTS	37,250	39,000	40,800	42,650	44,550		
AVG ANNUAL USE(BU)	11,000	10,977	10,958	10,940	10,925	-0.18	-0.18
SALES (1000 BU)	409,800	428,100	447,100	466,600	486,700	4.42	4.37
SEASONAL							
YEAR END ACCTS	25	26	26	27	27	1.55	2.22
AVG ANNUAL ACCTS	25	26	26	27	27		
AVG ANNUAL USE(BU)	27,050	27,100	27,150	27,200	27,250	0.18	0.54
SALES (1000 BU)	680	700	710	730	740	1.71	2.48
BC HYDRO USE							
YEAR END ACCTS	51	51	52	52	53	1.17	1.17
AVG ANNUAL ACCTS	51	51	52	52	53		
AVG ANNUAL USE(BU)	13,050	13,100	13,150	13,200	13,250	0.38	0.89
SALES (1000 BU)	670	670	680	690	700	1.49	2.39
CNG(FIRM)							
YEAR END ACCTS	68	74	81	88	94	8.68	0.00
AVG ANNUAL ACCTS	65	71	78	85	91		
AVG ANNUAL USE(BU)	405,500	400,600	393,100	388,900	391,400	-1.45	0.00
SALES (1000 BU)	26,360	28,440	30,660	33,060	35,620	7.84	0.00
TOTAL FIRM							
YEAR END ACCTS	277,744	283,151	288,659	294,467	300,374	1.96	2.28
AVG ANNUAL ACCTS	275,141	280,448	285,906	291,564	297,421		
AVG ANNUAL USE(BU)	2,728	2,757	2,786	2,814	2,848	1.07	0.87
SALES (1000 BU)	750,700	773,110	796,470	820,600	847,180	3.04	3.22
CNG(INTERRUP.)							
YEAR END ACCTS	6	6	6	6	6	3.71	0.00
AVG ANNUAL ACCTS	6	6	6	6	6		
AVG ANNUAL USE(BU)	631,700	653,300	678,300	705,000	733,300	0.09	0.00
SALES (1000 BU)	3,790	3,920	4,070	4,230	4,400	3.81	0.00
OTHER INTERRUP.							
YEAR END ACCTS	102	104	106	108	110	1.92	2.42
AVG ANNUAL ACCTS	101	103	105	107	109		
AVG ANNUAL USE(BU)	2,231,700	2,235,000	2,238,100	2,242,100	2,247,700	0.16	-0.06
SALES (1000 BU)	225,400	230,200	235,000	239,900	245,000	2.10	2.22
TOTAL INTERRUPT.							
YEAR END ACCTS	108	110	112	114	116	2.01	2.76
AVG ANNUAL ACCTS	107	109	111	113	115		
AVG ANNUAL USE(BU)	2,142,000	2,147,900	2,153,800	2,160,400	2,168,700	0.10	-0.28
SALES (1000 BU)	229,190	234,120	239,070	244,130	249,400	2.13	2.33
TOTAL SALES							
YEAR END ACCTS	277,852	283,261	288,771	294,581	300,490	1.96	2.28
AVG ANNUAL ACCTS	275,248	280,557	286,017	291,677	297,536		
AVG ANNUAL USE(BU)	3,560	3,590	3,621	3,650	3,686	0.86	0.66
SALES (1000 BU)	979,890	1,007,230	1,035,540	1,064,730	1,096,580	2.83	3.00

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-5

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

METROPOLITAN

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH	
						5 YRS(%)	21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	3,550	3,350	3,150	2,950	2,750	-6.01	-5.45
AVG ANNUAL ACCTS	3,650	3,450	3,250	3,050	2,850		
AVG ANNUAL USE(BU)	955	960	965	970	975	0.52	1.73
SALES (1000 BU)	3,490	3,310	3,140	2,960	2,780	-5.45	-3.91
RES WITH HEAT							
YEAR END ACCTS	254,100	258,700	263,400	268,100	272,900	1.79	2.13
AVG ANNUAL ACCTS	251,900	256,400	261,050	265,750	270,500		
AVG ANNUAL USE(BU)	1,231	1,227	1,223	1,219	1,214	-0.36	-0.49
SALES (1000 BU)	310,100	314,600	319,300	323,900	328,400	1.42	1.70
GEN WITHOUT HEAT							
YEAR END ACCTS	1,225	1,200	1,175	1,150	1,125	-2.09	-4.57
AVG ANNUAL ACCTS	1,240	1,215	1,190	1,165	1,140		
AVG ANNUAL USE(BU)	10,795	10,815	10,835	10,855	10,875	0.18	1.01
SALES (1000 BU)	13,390	13,140	12,890	12,650	12,400	-2.03	-3.65
GEN WITH HEAT							
YEAR END ACCTS	47,500	49,500	51,600	53,700	55,900	4.20	4.49
AVG ANNUAL ACCTS	46,500	48,500	50,550	52,650	54,800		
AVG ANNUAL USE(BU)	10,907	10,895	10,887	10,883	10,878	-0.09	-0.16
SALES (1000 BU)	507,200	528,400	550,300	573,000	596,100	4.14	4.32
SEASONAL							
YEAR END ACCTS	28	28	29	29	30	2.13	2.20
AVG ANNUAL ACCTS	28	28	29	29	30		
AVG ANNUAL USE(BU)	27,275	27,300	27,325	27,350	27,375	0.09	0.43
SALES (1000 BU)	760	760	790	790	820	2.07	2.38
BC HYDRO USE							
YEAR END ACCTS	53	54	54	55	55	0.74	1.07
AVG ANNUAL ACCTS	53	54	54	55	55		
AVG ANNUAL USE(BU)	13,275	13,300	13,325	13,350	13,375	0.19	0.72
SALES (1000 BU)	700	720	720	730	740	1.12	2.08
CNG(FIRM)							
YEAR END ACCTS	100	106	112	119	124	5.70	0.00
AVG ANNUAL ACCTS	97	103	109	116	122		
AVG ANNUAL USE(BU)	395,600	401,300	408,350	407,000	410,500	0.96	0.00
SALES (1000 BU)	38,370	41,330	44,510	47,210	50,080	7.05	0.00
TOTAL FIRM							
YEAR END ACCTS	306,556	312,938	319,520	326,103	332,884	2.08	2.23
AVG ANNUAL ACCTS	303,468	309,750	316,232	322,815	329,497		
AVG ANNUAL USE(BU)	2,880	2,913	2,946	2,978	3,009	1.11	0.92
SALES (1000 BU)	874,010	902,260	931,650	961,240	991,320	3.19	3.21
CNG(INTERRUP.)							
YEAR END ACCTS	7	7	7	7	8	5.92	0.00
AVG ANNUAL ACCTS	7	7	7	7	8		
AVG ANNUAL USE(BU)	657,100	685,700	715,700	748,600	683,800	-1.39	0.00
SALES (1000 BU)	4,600	4,800	5,010	5,240	5,470	4.45	0.00
OTHER INTERRUP.							
YEAR END ACCTS	112	114	116	118	120	1.76	2.26
AVG ANNUAL ACCTS	111	113	115	117	119		
AVG ANNUAL USE(BU)	2,251,400	2,255,800	2,260,900	2,266,700	2,273,100	0.22	0.01
SALES (1000 BU)	249,900	254,900	260,000	265,200	270,500	2.00	2.17
TOTAL INTERRUPT.							
YEAR END ACCTS	119	121	123	125	128	1.99	2.58
AVG ANNUAL ACCTS	118	120	122	124	127		
AVG ANNUAL USE(BU)	2,156,800	2,164,200	2,172,200	2,181,000	2,173,000	0.04	-0.21
SALES (1000 BU)	254,500	259,700	265,010	270,440	275,970	2.05	2.26
TOTAL SALES							
YEAR END ACCTS	306,675	313,059	319,643	326,228	333,012	2.08	2.23
AVG ANNUAL ACCTS	303,586	309,870	316,354	322,939	329,624		
AVG ANNUAL USE(BU)	3,717	3,750	3,783	3,814	3,845	0.85	0.71
SALES (1000 BU)	1,128,510	1,161,960	1,196,660	1,231,680	1,267,290	2.94	2.99

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

N A T U R A L   G A S

DETAILED FORECAST   20   FISCAL YEAR   HIGH   PROJECTION OF ACCOUNTS AND SALES   PAGE 1 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION   REVISION# 1   FRASER VALLEY

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	1,185	1,185	1,250	1,300	1,350	1,400	1,450	1,500	4.01
AVG ANNUAL ACCTS	1,173	1,173	1,220	1,275	1,325	1,375	1,425	1,475	
AVG ANNUAL USE(BU)	956	900	910	920	930	940	945	950	0.91
SALES (1000 BU)	1,121	1,060	1,110	1,170	1,230	1,290	1,350	1,400	4.75
RES WITH HEAT									
YEAR END ACCTS	106,524	106,524	111,500	116,700	121,900	127,200	132,600	138,100	4.42
AVG ANNUAL ACCTS	104,568	104,568	109,000	114,100	119,300	124,550	129,900	135,350	
AVG ANNUAL USE(BU)	1,212	1,225	1,227	1,229	1,219	1,210	1,201	1,194	-0.43
SALES (1000 BU)	126,707	128,100	133,700	140,200	145,400	150,700	156,000	161,600	3.95
GEN WITHOUT HEAT									
YEAR END ACCTS	347	347	350	355	360	365	370	375	1.30
AVG ANNUAL ACCTS	345	345	350	355	360	365	370	375	
AVG ANNUAL USE(BU)	28,965	31,250	30,000	31,800	33,500	33,900	34,250	34,500	1.66
SALES (1000 BU)	9,993	10,780	10,500	11,290	12,060	12,370	12,670	12,940	3.09
GEN WITH HEAT									
YEAR END ACCTS	9,696	9,696	10,200	10,800	11,500	12,400	13,500	14,700	7.18
AVG ANNUAL ACCTS	9,222	9,222	9,950	10,500	11,150	11,950	12,950	14,100	
AVG ANNUAL USE(BU)	7,737	7,800	7,522	7,845	8,110	8,164	8,216	8,274	0.99
SALES (1000 BU)	71,355	71,920	74,800	82,400	90,400	97,600	106,400	116,700	8.40
SEASONAL									
YEAR END ACCTS	21	21	20	20	20	21	21	21	0.00
AVG ANNUAL ACCTS	22	22	21	20	20	21	21	21	
AVG ANNUAL USE(BU)	28,636	32,000	31,000	30,000	29,500	29,000	28,700	28,500	-1.91
SALES (1000 BU)	630	700	650	600	590	610	600	600	-2.54
BC HYDRO USE									
YEAR END ACCTS	32	32	32	33	33	33	34	34	1.02
AVG ANNUAL ACCTS	32	32	32	33	33	33	34	34	
AVG ANNUAL USE(BU)	11,840	11,300	11,250	11,200	11,150	11,100	11,050	11,000	-0.45
SALES (1000 BU)	379	360	360	370	370	370	380	370	0.46
CNG(FIRM)									
YEAR END ACCTS			1	4	8	11	15	18	999.00
AVG ANNUAL ACCTS			1	3	6	10	13	17	
AVG ANNUAL USE(BU)			10,000	36,700	58,300	138,000	252,300	341,200	999.00
SALES (1000 BU)			10	110	350	1,380	3,280	5,800	0.00
TOTAL FIRM									
YEAR END ACCTS	117,805	117,805	123,353	129,212	135,171	141,430	147,990	154,748	4.65
AVG ANNUAL ACCTS	115,362	115,362	120,574	126,286	132,194	138,304	144,713	151,372	
AVG ANNUAL USE(BU)	1,822	1,846	1,834	1,870	1,894	1,911	1,940	1,978	1.16
SALES (1000 BU)	210,185	212,920	221,130	236,140	250,400	264,320	280,680	299,410	5.85
CNG(INTERRUP.)									
YEAR END ACCTS			1	1	1	1	1	1	999.00
AVG ANNUAL ACCTS			1	1	1	1	1	1	
AVG ANNUAL USE(BU)			40,000	220,000	580,000	770,000	810,000	900,000	999.00
SALES (1000 BU)			40	220	580	770	810	900	0.00
OTHER INTERRUP.									
YEAR END ACCTS	20	20	20	20	20	21	21	22	1.60
AVG ANNUAL ACCTS	20	20	20	20	20	21	21	22	
AVG ANNUAL USE(BU)	1,722,050	2,122,800	1,915,000	1,960,000	2,005,000	1,952,400	1,995,200	1,950,000	-1.41
SALES (1000 BU)	34,441	42,456	38,300	39,200	40,100	41,000	41,900	42,900	0.17
TOTAL INTERRUPT.									
YEAR END ACCTS	20	20	21	21	21	22	22	23	2.36
AVG ANNUAL ACCTS	20	20	21	21	21	22	22	23	
AVG ANNUAL USE(BU)	1,722,100	2,122,800	1,825,700	1,877,100	1,937,100	1,898,600	1,941,400	1,904,300	-1.79
SALES (1000 BU)	34,441	42,456	38,340	39,420	40,680	41,770	42,710	43,800	0.52
TOTAL SALES									
YEAR END ACCTS	117,825	117,825	123,374	129,233	135,192	141,452	148,012	154,771	4.65
AVG ANNUAL ACCTS	115,382	115,382	120,595	126,307	132,215	138,326	144,735	151,395	
AVG ANNUAL USE(BU)	2,120	2,213	2,152	2,182	2,202	2,213	2,234	2,267	0.40
SALES (1000 BU)	244,626	255,376	259,470	275,560	291,080	306,090	323,390	343,210	5.05

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-6

DETAILED FORECAST 20 FISCAL YEAR

NATURAL GAS
HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
FRASER VALLEY

1982 EDITION REVISION# 1

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	1,550	1,600	1,650	1,700	1,750	3.13	3.61
AVG ANNUAL ACCTS	1,525	1,575	1,625	1,675	1,725		
AVG ANNUAL USE(BU)	952	954	956	958	960	0.21	0.59
SALES (1000 BU)	1,450	1,500	1,550	1,600	1,660	3.47	4.16
RES WITH HEAT							
YEAR END ACCTS	143,800	149,700	155,600	161,900	168,200	4.02	4.24
AVG ANNUAL ACCTS	140,950	146,750	152,650	158,750	165,050		
AVG ANNUAL USE(BU)	1,185	1,176	1,168	1,161	1,154	-0.68	-0.54
SALES (1000 BU)	167,000	172,600	178,300	184,300	190,500	3.35	3.67
GEN WITHOUT HEAT							
YEAR END ACCTS	380	385	390	395	400	1.30	1.30
AVG ANNUAL ACCTS	380	385	390	395	400		
AVG ANNUAL USE(BU)	34,700	34,900	35,100	35,300	35,500	0.57	1.17
SALES (1000 BU)	13,190	13,440	13,690	13,940	14,200	1.88	2.54
GEN WITH HEAT							
YEAR END ACCTS	16,000	17,300	18,700	20,100	21,600	8.00	7.55
AVG ANNUAL ACCTS	15,350	16,650	18,000	19,400	20,850		
AVG ANNUAL USE(BU)	8,338	8,412	8,490	8,576	8,664	0.93	0.96
SALES (1000 BU)	128,000	140,100	152,800	166,400	180,600	9.13	8.73
SEASONAL							
YEAR END ACCTS	22	22	22	23	23	1.84	0.83
AVG ANNUAL ACCTS	22	22	22	23	23		
AVG ANNUAL USE(BU)	28,300	28,100	27,900	27,700	27,500	-0.71	-1.37
SALES (1000 BU)	620	620	610	640	630	0.98	-0.95
BC HYDRO USE							
YEAR END ACCTS	34	35	35	35	36	1.15	1.08
AVG ANNUAL ACCTS	34	35	35	35	36		
AVG ANNUAL USE(BU)	10,950	10,900	10,850	10,800	10,750	-0.46	-0.45
SALES (1000 BU)	370	380	380	380	390	1.06	0.73
CNG(FIRM)							
YEAR END ACCTS	22	26	29	33	37	15.50	0.00
AVG ANNUAL ACCTS	20	24	28	31	35		
AVG ANNUAL USE(BU)	422,000	431,300	448,900	438,100	418,900	4.19	0.00
SALES (1000 BU)	8,440	10,350	12,570	13,580	14,660	20.38	0.00
TOTAL FIRM							
YEAR END ACCTS	161,808	169,068	176,426	184,186	192,046	4.41	4.54
AVG ANNUAL ACCTS	158,281	165,441	172,750	180,309	188,119		
AVG ANNUAL USE(BU)	2,016	2,049	2,083	2,112	2,140	1.59	1.35
SALES (1000 BU)	319,070	338,990	359,900	380,840	402,640	6.10	5.96
CNG(INTERRUP.)							
YEAR END ACCTS	2	2	2	3	3	24.57	0.00
AVG ANNUAL ACCTS	2	2	2	3	3		
AVG ANNUAL USE(BU)	535,000	580,000	735,000	503,300	523,300	-10.28	0.00
SALES (1000 BU)	1,070	1,160	1,470	1,510	1,570	11.77	0.00
OTHER INTERRUP.							
YEAR END ACCTS	22	23	23	24	25	2.59	2.05
AVG ANNUAL ACCTS	22	23	23	24	25		
AVG ANNUAL USE(BU)	1,990,900	1,947,800	1,991,300	1,950,000	1,912,000	-0.39	-0.95
SALES (1000 BU)	43,800	44,800	45,800	46,800	47,800	2.19	1.08
TOTAL INTERRUPT.							
YEAR END ACCTS	24	25	25	27	28	4.01	3.11
AVG ANNUAL ACCTS	24	25	25	27	28		
AVG ANNUAL USE(BU)	1,869,600	1,838,400	1,890,800	1,789,300	1,763,200	-1.53	-1.67
SALES (1000 BU)	44,870	45,960	47,270	48,310	49,370	2.42	1.38
TOTAL SALES							
YEAR END ACCTS	161,832	169,093	176,451	184,213	192,074	4.41	4.54
AVG ANNUAL ACCTS	158,305	165,466	172,775	180,336	188,147		
AVG ANNUAL USE(BU)	2,299	2,326	2,357	2,380	2,402	1.16	0.75
SALES (1000 BU)	363,940	384,950	407,170	429,150	452,010	5.66	5.33

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
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5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
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7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-6

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 3 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1 FRASER VALLEY

	1993/94	1994/95	1995/96	1996/97	1997/98	AVG. ANNUAL GROWTH 5 YRS(%)	16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	1,800	1,850	1,900	1,950	2,000	2.71	3.33
AVG ANNUAL ACCTS	1,775	1,825	1,875	1,925	1,975		
AVG ANNUAL USE(BU)	961	962	963	964	965	0.10	0.44
SALES (1000 BU)	1,710	1,760	1,810	1,860	1,910	2.85	3.75
RES WITH HEAT							
YEAR END ACCTS	174,600	180,700	186,400	191,700	197,100	3.22	3.92
AVG ANNUAL ACCTS	171,400	177,650	183,550	189,050	194,400		
AVG ANNUAL USE(BU)	1,147	1,140	1,133	1,127	1,123	-0.54	-0.54
SALES (1000 BU)	196,600	202,500	208,000	213,100	218,300	2.76	3.39
GEN WITHOUT HEAT							
YEAR END ACCTS	405	410	415	420	425	1.22	1.28
AVG ANNUAL ACCTS	405	410	415	420	425		
AVG ANNUAL USE(BU)	35,600	35,700	35,800	35,900	36,000	0.28	0.89
SALES (1000 BU)	14,420	14,640	14,860	15,080	15,300	1.50	2.21
GEN WITH HEAT							
YEAR END ACCTS	23,100	24,700	26,300	28,000	29,700	6.58	7.25
AVG ANNUAL ACCTS	22,350	23,900	25,500	27,150	28,850		
AVG ANNUAL USE(BU)	8,732	8,802	8,877	8,952	9,031	0.83	0.92
SALES (1000 BU)	195,200	210,400	226,400	243,000	260,500	7.60	8.38
SEASONAL							
YEAR END ACCTS	23	24	24	24	25	1.68	1.10
AVG ANNUAL ACCTS	23	24	24	24	25		
AVG ANNUAL USE(BU)	27,400	27,300	27,200	27,100	27,000	-0.37	-1.06
SALES (1000 BU)	630	660	650	650	680	1.54	-0.18
BC HYDRO USE							
YEAR END ACCTS	36	36	37	37	37	0.55	0.91
AVG ANNUAL ACCTS	36	36	37	37	37		
AVG ANNUAL USE(BU)	10,725	10,700	10,675	10,650	10,625	-0.23	-0.38
SALES (1000 BU)	390	390	390	390	390	0.00	0.50
CNG(FIRM)							
YEAR END ACCTS	41	45	49	53	57	9.03	0.00
AVG ANNUAL ACCTS	39	43	47	51	55		
AVG ANNUAL USE(BU)	405,400	396,700	391,500	388,800	388,700	-1.49	0.00
SALES (1000 BU)	15,810	17,060	18,400	19,830	21,380	7.84	0.00
TOTAL FIRM							
YEAR END ACCTS	200,005	207,765	215,125	222,184	229,344	3.61	4.25
AVG ANNUAL ACCTS	196,028	203,888	211,448	218,657	225,767		
AVG ANNUAL USE(BU)	2,167	2,194	2,225	2,259	2,296	1.42	1.37
SALES (1000 BU)	424,760	447,410	470,510	493,910	518,460	5.19	5.72
CNG(INTERRUP.)							
YEAR END ACCTS	3	3	3	3	3	0.00	0.00
AVG ANNUAL ACCTS	3	3	3	3	3		
AVG ANNUAL USE(BU)	540,000	560,000	580,000	603,300	630,000	3.78	0.00
SALES (1000 BU)	1,620	1,680	1,740	1,810	1,890	3.78	0.00
OTHER INTERRUP.							
YEAR END ACCTS	25	26	26	27	27	1.55	1.89
AVG ANNUAL ACCTS	25	26	26	27	27		
AVG ANNUAL USE(BU)	1,952,000	1,915,400	1,957,700	1,922,200	1,963,000	0.53	-0.49
SALES (1000 BU)	48,800	49,800	50,900	51,900	53,000	2.09	1.40
TOTAL INTERRUPT.							
YEAR END ACCTS	28	29	29	30	30	1.39	2.57
AVG ANNUAL ACCTS	28	29	29	30	30		
AVG ANNUAL USE(BU)	1,800,700	1,775,200	1,815,200	1,790,300	1,829,700	0.74	-0.92
SALES (1000 BU)	50,420	51,480	52,640	53,710	54,890	2.14	1.62
TOTAL SALES							
YEAR END ACCTS	200,033	207,794	215,154	222,214	229,374	3.61	4.25
AVG ANNUAL ACCTS	196,056	203,917	211,477	218,687	225,797		
AVG ANNUAL USE(BU)	2,424	2,447	2,474	2,504	2,539	1.12	0.86
SALES (1000 BU)	475,180	498,890	523,150	547,620	573,350	4.87	5.18

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-6

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR HIGH PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

FRASER VALLEY

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	2,050	2,100	2,150	2,200	2,250	2.38	3.10
AVG ANNUAL ACCTS	2,025	2,075	2,125	2,175	2,225		
AVG ANNUAL USE(BU)	965	965	965	965	965	0.00	0.33
SALES (1000 BU)	1,950	2,000	2,050	2,100	2,150	2.40	3.42
RES WITH HEAT							
YEAR END ACCTS	202,600	208,300	214,100	220,000	226,000	2.77	3.65
AVG ANNUAL ACCTS	199,850	205,450	211,200	217,050	223,000		
AVG ANNUAL USE(BU)	1,118	1,113	1,108	1,104	1,099	-0.43	-0.52
SALES (1000 BU)	223,400	228,700	234,000	239,600	245,100	2.34	3.14
GEN WITHOUT HEAT							
YEAR END ACCTS	430	435	440	445	450	1.15	1.25
AVG ANNUAL ACCTS	430	435	440	445	450		
AVG ANNUAL USE(BU)	36,050	36,100	36,150	36,200	36,250	0.14	0.71
SALES (1000 BU)	15,500	15,700	15,910	16,110	16,310	1.29	1.99
GEN WITH HEAT							
YEAR END ACCTS	31,400	33,200	35,000	36,800	38,600	5.38	6.80
AVG ANNUAL ACCTS	30,550	32,300	34,100	35,900	37,700		
AVG ANNUAL USE(BU)	9,088	9,144	9,204	9,265	9,328	0.65	0.86
SALES (1000 BU)	277,600	295,400	313,900	332,600	351,700	6.19	7.85
SEASONAL							
YEAR END ACCTS	25	25	26	26	26	0.79	1.02
AVG ANNUAL ACCTS	25	25	26	26	26		
AVG ANNUAL USE(BU)	26,950	26,900	26,850	26,800	26,750	-0.19	-0.85
SALES (1000 BU)	670	670	700	700	700	0.58	0.00
BC HYDRO USE							
YEAR END ACCTS	38	38	39	39	40	1.57	1.07
AVG ANNUAL ACCTS	38	38	39	39	40		
AVG ANNUAL USE(BU)	10,610	10,595	10,580	10,565	10,550	-0.14	-0.33
SALES (1000 BU)	400	400	410	410	420	1.49	0.74
CNG(FIRM)							
YEAR END ACCTS	60	64	68	71	74	5.36	0.00
AVG ANNUAL ACCTS	59	62	66	70	73		
AVG ANNUAL USE(BU)	390,200	400,000	404,700	404,600	411,500	1.15	0.00
SALES (1000 BU)	23,020	24,800	26,710	28,320	30,040	7.04	0.00
TOTAL FIRM							
YEAR END ACCTS	236,603	244,162	251,823	259,581	267,440	3.12	3.98
AVG ANNUAL ACCTS	232,977	240,385	247,996	255,705	263,514		
AVG ANNUAL USE(BU)	2,329	2,362	2,394	2,424	2,453	1.33	1.36
SALES (1000 BU)	542,540	567,670	593,680	619,840	646,420	4.51	5.43
CNG(INTERRUP.)							
YEAR END ACCTS	3	3	3	3	4	5.92	0.00
AVG ANNUAL ACCTS	3	3	3	3	4		
AVG ANNUAL USE(BU)	656,700	686,700	716,700	750,000	585,000	-1.47	0.00
SALES (1000 BU)	1,970	2,060	2,150	2,250	2,340	4.36	0.00
OTHER INTERRUP.							
YEAR END ACCTS	28	28	29	29	30	2.13	1.95
AVG ANNUAL ACCTS	28	28	29	29	30		
AVG ANNUAL USE(BU)	1,932,100	1,967,900	1,937,900	1,979,300	1,950,000	-0.13	-0.40
SALES (1000 BU)	54,100	55,100	56,200	57,400	58,500	1.99	1.54
TOTAL INTERRUPT.							
YEAR END ACCTS	31	31	32	32	34	2.53	2.56
AVG ANNUAL ACCTS	31	31	32	32	34		
AVG ANNUAL USE(BU)	1,808,700	1,843,900	1,823,400	1,864,100	1,789,400	-0.44	-0.81
SALES (1000 BU)	56,070	57,160	58,350	59,650	60,840	2.08	1.73
TOTAL SALES							
YEAR END ACCTS	236,634	244,193	251,855	259,613	267,474	3.12	3.98
AVG ANNUAL ACCTS	233,008	240,416	248,028	255,737	263,548		
AVG ANNUAL USE(BU)	2,569	2,599	2,629	2,657	2,684	1.12	0.92
SALES (1000 BU)	598,610	624,830	652,030	679,490	707,260	4.29	4.97

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-7

N A T U R A L   G A S

DETAILED FORECAST 20 · FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 1 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

LOWER MAINLAND

1982 EDITION REVISION# 1

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	10,098	10,098	9,750	9,400	9,050	8,700	8,350	8,000	-3.81
AVG ANNUAL ACCTS	10,619	10,619	9,925	9,575	9,225	8,875	8,525	8,175	
AVG ANNUAL USE(BU)	717	704	748	768	788	809	829	848	3.15
SALES (1000 BU)	7,611	7,480	7,420	7,350	7,270	7,180	7,070	6,930	-1.26
RES WITH HEAT									
YEAR END ACCTS	281,770	281,770	290,000	299,100	308,400	318,200	328,100	337,500	3.05
AVG ANNUAL ACCTS	275,941	275,941	285,850	294,550	303,750	313,300	323,150	332,800	
AVG ANNUAL USE(BU)	1,284	1,300	1,287	1,275	1,255	1,230	1,207	1,185	-1.53
SALES (1000 BU)	354,293	358,600	367,900	375,500	381,200	385,400	390,000	394,300	1.59
GEN WITHOUT HEAT									
YEAR END ACCTS	3,352	3,352	3,150	2,955	2,760	2,615	2,470	2,375	-5.58
AVG ANNUAL ACCTS	3,423	3,423	3,255	3,055	2,860	2,690	2,545	2,425	
AVG ANNUAL USE(BU)	10,830	11,065	11,080	12,005	12,915	13,370	13,780	14,130	4.16
SALES (1000 BU)	37,066	37,870	36,060	36,670	36,930	35,970	35,070	34,260	-1.66
GEN WITH HEAT									
YEAR END ACCTS	31,910	31,910	32,800	33,600	34,600	36,000	37,800	39,600	3.66
AVG ANNUAL ACCTS	31,032	31,032	32,355	33,200	34,100	35,300	36,900	38,700	
AVG ANNUAL USE(BU)	10,120	10,220	9,680	9,960	10,170	10,010	9,850	9,690	-0.88
SALES (1000 BU)	313,897	317,270	313,200	330,800	346,700	353,500	363,300	374,900	2.82
SEASONAL									
YEAR END ACCTS	40	40	40	40	41	42	43	43	1.21
AVG ANNUAL ACCTS	42	42	41	40	41	42	43	43	
AVG ANNUAL USE(BU)	26,980	28,570	28,290	28,000	27,800	27,620	27,440	27,440	-0.67
SALES (1000 BU)	1,133	1,200	1,160	1,120	1,140	1,160	1,180	1,180	-0.28
BC HYDRO USE									
YEAR END ACCTS	76	76	77	79	79	80	81	82	1.27
AVG ANNUAL ACCTS	74	74	77	79	79	80	81	82	
AVG ANNUAL USE(BU)	11,530	11,350	11,560	11,650	11,770	11,880	11,850	11,830	0.69
SALES (1000 BU)	853	840	890	920	930	950	960	970	2.43
CNG(FIRM)									
YEAR END ACCTS			2	2	3	4	5	6	999.00
AVG ANNUAL ACCTS			2	2	3	4	5	6	
AVG ANNUAL USE(BU)			10,000	40,000	90,000	275,000	526,000	773,300	999.00
SALES (1000 BU)			20	80	270	1,100	2,630	4,640	0.00
TOTAL FIRM									
YEAR END ACCTS	327,246	327,246	335,819	345,176	354,933	365,641	376,849	387,606	2.86
AVG ANNUAL ACCTS	321,131	321,131	331,505	340,501	350,058	360,291	371,249	382,231	
AVG ANNUAL USE(BU)	2,226	2,252	2,192	2,210	2,212	2,180	2,155	2,138	-0.86
SALES (1000 BU)	714,853	723,260	726,650	752,440	774,440	785,260	800,210	817,180	2.06
CNG(INTERRUP.)									
YEAR END ACCTS			2	2	2	3	3	3	999.00
AVG ANNUAL ACCTS			2	2	2	3	3	3	
AVG ANNUAL USE(BU)			35,000	195,000	535,000	470,000	496,700	553,300	999.00
SALES (1000 BU)			70	390	1,070	1,410	1,490	1,660	0.00
OTHER INTERRUP.									
YEAR END ACCTS	95	95	100	100	102	103	104	106	1.84
AVG ANNUAL ACCTS	96	96	98	100	102	103	104	106	
AVG ANNUAL USE(BU)	2,342,100	2,239,200	2,193,900	2,187,000	2,180,400	2,196,100	2,211,500	2,206,600	-0.24
SALES (1000 BU)	224,844	214,965	215,000	218,700	222,400	226,200	230,000	233,900	1.42
TOTAL INTERRUPT.									
YEAR END ACCTS	95	95	102	102	104	106	107	109	2.32
AVG ANNUAL ACCTS	96	96	100	102	104	106	107	109	
AVG ANNUAL USE(BU)	2,342,100	2,239,200	2,150,700	2,147,900	2,148,800	2,147,300	2,163,500	2,161,100	-0.59
SALES (1000 BU)	224,844	214,965	215,070	219,090	223,470	227,610	231,490	235,560	1.54
TOTAL SALES									
YEAR END ACCTS	327,341	327,341	335,921	345,278	355,037	365,747	376,956	387,715	2.86
AVG ANNUAL ACCTS	321,227	321,227	331,605	340,603	350,162	360,397	371,356	382,340	
AVG ANNUAL USE(BU)	2,925	2,921	2,840	2,852	2,850	2,810	2,778	2,753	-0.98
SALES (1000 BU)	939,697	938,225	941,720	971,530	997,910	1,012,870	1,031,700	1,052,740	1.94

NOTES:
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-7

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1

LOWER MAINLAND

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	7,750	7,500	7,250	7,000	6,750	-3.34	-3.60
AVG ANNUAL ACCTS	7,875	7,625	7,375	7,125	6,875		
AVG ANNUAL USE(BU)	861	875	888	901	915	1.53	2.41
SALES (1000 BU)	6,780	6,670	6,550	6,420	6,290	-1.92	-1.56
RES WITH HEAT							
YEAR END ACCTS	345,700	352,600	359,500	366,700	374,200	2.09	2.61
AVG ANNUAL ACCTS	341,600	349,150	356,050	363,100	370,450		
AVG ANNUAL USE(BU)	1,163	1,144	1,127	1,109	1,100	-1.48	-1.51
SALES (1000 BU)	397,200	399,500	401,200	402,700	407,500	0.66	1.17
GEN WITHOUT HEAT							
YEAR END ACCTS	2,280	2,185	2,090	1,995	1,900	-4.36	-5.03
AVG ANNUAL ACCTS	2,330	2,235	2,140	2,045	1,950		
AVG ANNUAL USE(BU)	14,410	14,705	15,025	15,370	15,750	2.19	3.26
SALES (1000 BU)	33,570	32,870	32,150	31,430	30,710	-2.16	-1.89
GEN WITH HEAT							
YEAR END ACCTS	41,600	43,600	45,800	48,000	50,400	4.94	4.24
AVG ANNUAL ACCTS	40,600	42,600	44,700	46,900	49,200		
AVG ANNUAL USE(BU)	9,510	9,350	9,200	9,060	8,930	-1.62	-1.22
SALES (1000 BU)	386,200	398,400	411,200	425,000	439,500	3.23	3.01
SEASONAL							
YEAR END ACCTS	45	45	46	47	48	2.22	1.67
AVG ANNUAL ACCTS	45	45	46	47	48		
AVG ANNUAL USE(BU)	27,330	27,330	27,170	27,450	27,290	-0.11	-0.42
SALES (1000 BU)	1,230	1,230	1,250	1,290	1,310	2.11	0.80
BC HYDRO USE							
YEAR END ACCTS	82	84	84	85	86	0.96	1.13
AVG ANNUAL ACCTS	82	84	84	85	86		
AVG ANNUAL USE(BU)	11,830	11,900	12,020	12,000	12,090	0.44	0.58
SALES (1000 BU)	970	1,000	1,010	1,020	1,040	1.40	1.96
CNG(FIRM)							
YEAR END ACCTS	7	8	8	10	11	12.89	0.00
AVG ANNUAL ACCTS	7	8	8	10	11		
AVG ANNUAL USE(BU)	965,700	1,086,300	1,210,000	992,000	923,600	3.62	0.00
SALES (1000 BU)	6,760	8,690	9,680	9,920	10,160	16.97	0.00
TOTAL FIRM							
YEAR END ACCTS	397,464	406,022	414,778	423,837	433,395	2.26	2.59
AVG ANNUAL ACCTS	392,539	401,747	410,403	419,312	428,620		
AVG ANNUAL USE(BU)	2,121	2,112	2,103	2,093	2,092	-0.43	-0.67
SALES (1000 BU)	832,710	848,360	863,040	877,780	896,510	1.87	1.97
CNG(INTERRUP.)							
YEAR END ACCTS	3	3	4	4	4	5.92	0.00
AVG ANNUAL ACCTS	3	3	4	4	4		
AVG ANNUAL USE(BU)	653,300	703,300	555,000	577,500	602,500	1.72	0.00
SALES (1000 BU)	1,960	2,110	2,220	2,310	2,410	7.74	0.00
OTHER INTERRUP.							
YEAR END ACCTS	107	109	110	111	113	1.29	1.59
AVG ANNUAL ACCTS	107	109	110	111	113		
AVG ANNUAL USE(BU)	2,221,500	2,214,700	2,230,000	2,245,000	2,240,700	0.31	0.01
SALES (1000 BU)	237,700	241,400	245,300	249,200	253,200	1.60	1.50
TOTAL INTERRUPT.							
YEAR END ACCTS	110	112	114	115	117	1.43	1.91
AVG ANNUAL ACCTS	110	112	114	115	117		
AVG ANNUAL USE(BU)	2,178,700	2,174,200	2,171,200	2,187,000	2,184,700	0.22	-0.22
SALES (1000 BU)	239,660	243,510	247,520	251,510	255,610	1.65	1.59
TOTAL SALES							
YEAR END ACCTS	397,574	406,134	414,892	423,952	433,512	2.26	2.59
AVG ANNUAL ACCTS	392,649	401,859	410,517	419,427	428,737		
AVG ANNUAL USE(BU)	2,731	2,717	2,705	2,692	2,687	-0.48	-0.76
SALES (1000 BU)	1,072,370	1,091,870	1,110,560	1,129,290	1,152,120	1.82	1.88

NOTES:
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3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-7

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 3 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1 LOWER MAINLAND

						AVG. ANNUAL GROWTH	
	1993/94	1994/95	1995/96	1996/97	1997/98	5 YRS(%)	16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	6,550	6,350	6,150	5,950	5,750	-3.16	-3.46
AVG ANNUAL ACCTS	6,650	6,450	6,250	6,050	5,850		
AVG ANNUAL USE(BU)	925	932	941	949	956	0.88	1.93
SALES (1000 BU)	6,150	6,010	5,880	5,740	5,590	-2.33	-1.80
RES WITH HEAT							
YEAR END ACCTS	381,800	389,700	397,800	406,200	414,700	2.08	2.44
AVG ANNUAL ACCTS	378,000	385,750	393,750	402,000	410,450		
AVG ANNUAL USE(BU)	1,091	1,081	1,072	1,063	1,053	-0.87	-1.31
SALES (1000 BU)	412,400	417,000	422,100	427,200	432,400	1.19	1.18
GEN WITHOUT HEAT							
YEAR END ACCTS	1,855	1,810	1,765	1,720	1,675	-2.49	-4.24
AVG ANNUAL ACCTS	1,880	1,835	1,790	1,745	1,700		
AVG ANNUAL USE(BU)	16,050	16,290	16,540	16,800	17,080	1.63	2.75
SALES (1000 BU)	30,170	29,890	29,610	29,320	29,040	-1.11	-1.65
GEN WITH HEAT							
YEAR END ACCTS	52,800	55,400	58,000	60,800	63,600	4.76	4.40
AVG ANNUAL ACCTS	51,600	54,100	56,700	59,400	62,200		
AVG ANNUAL USE(BU)	8,820	8,730	8,660	8,590	8,530	-0.91	-1.12
SALES (1000 BU)	454,900	472,500	491,300	510,500	530,800	3.85	3.27
SEASONAL							
YEAR END ACCTS	48	50	50	51	52	1.61	1.65
AVG ANNUAL ACCTS	48	50	50	51	52		
AVG ANNUAL USE(BU)	27,290	27,200	27,200	27,060	27,310	0.01	-0.28
SALES (1000 BU)	1,310	1,360	1,360	1,380	1,420	1.63	1.06
BC HYDRO USE							
YEAR END ACCTS	87	87	89	89	90	0.91	1.06
AVG ANNUAL ACCTS	87	87	89	89	90		
AVG ANNUAL USE(BU)	12,180	12,180	12,020	12,130	12,110	0.03	0.41
SALES (1000 BU)	1,060	1,060	1,070	1,080	1,090	0.94	1.64
CNG(FIRM)							
YEAR END ACCTS	12	13	14	15	16	7.78	0.00
AVG ANNUAL ACCTS	12	13	14	15	16		
AVG ANNUAL USE(BU)	865,800	818,500	777,100	743,300	712,500	-5.06	0.00
SALES (1000 BU)	10,390	10,640	10,880	11,150	11,400	2.33	0.00
TOTAL FIRM							
YEAR END ACCTS	443,152	453,410	463,868	474,825	485,883	2.31	2.50
AVG ANNUAL ACCTS	438,277	448,285	458,643	469,350	480,358		
AVG ANNUAL USE(BU)	2,091	2,093	2,098	2,102	2,106	0.13	-0.42
SALES (1000 BU)	916,380	938,460	962,200	986,370	1,011,740	2.45	2.12
CNG(INTERRUP.)							
YEAR END ACCTS	5	5	5	5	5	4.56	0.00
AVG ANNUAL ACCTS	5	5	5	5	5		
AVG ANNUAL USE(BU)	506,000	528,000	556,000	578,000	606,000	0.12	0.00
SALES (1000 BU)	2,530	2,640	2,780	2,890	3,030	4.69	0.00
OTHER INTERRUP.							
YEAR END ACCTS	114	115	117	118	119	1.04	1.42
AVG ANNUAL ACCTS	114	115	117	118	119		
AVG ANNUAL USE(BU)	2,254,400	2,268,700	2,263,200	2,278,000	2,292,400	0.46	0.15
SALES (1000 BU)	257,000	260,900	264,800	268,800	272,800	1.50	1.50
TOTAL INTERRUPT.							
YEAR END ACCTS	119	120	122	123	124	1.17	1.68
AVG ANNUAL ACCTS	119	120	122	123	124		
AVG ANNUAL USE(BU)	2,180,900	2,196,200	2,193,300	2,208,900	2,224,400	0.36	-0.04
SALES (1000 BU)	259,530	263,540	267,580	271,690	275,830	1.53	1.57
TOTAL SALES							
YEAR END ACCTS	443,271	453,530	463,990	474,948	486,007	2.31	2.50
AVG ANNUAL ACCTS	438,396	448,405	458,765	469,473	480,482		
AVG ANNUAL USE(BU)	2,682	2,681	2,681	2,680	2,680	-0.05	-0.54
SALES (1000 BU)	1,175,910	1,202,000	1,229,780	1,258,060	1,287,570	2.25	2.00

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-7

DETAILED FORECAST

1982 EDITION REVISION# 1

NATURAL GAS

20 FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

LOWER MAINLAND

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH 5 YRS(%)	21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	5,600	5,450	5,300	5,150	5,000	-2.76	-3.29
AVG ANNUAL ACCTS	5,675	5,525	5,375	5,225	5,075		
AVG ANNUAL USE(BU)	959	961	966	968	971	0.31	1.54
SALES (1000 BU)	5,440	5,310	5,190	5,060	4,930	-2.48	-1.97
RES WITH HEAT							
YEAR END ACCTS	423,500	432,500	441,700	451,000	460,500	2.12	2.37
AVG ANNUAL ACCTS	419,100	428,000	437,100	446,350	455,750		
AVG ANNUAL USE(BU)	1,045	1,038	1,030	1,023	1,015	-0.73	-1.17
SALES (1000 BU)	438,100	444,200	450,300	456,400	462,400	1.35	1.22
GEN WITHOUT HEAT							
YEAR END ACCTS	1,655	1,635	1,615	1,595	1,575	-1.22	-3.53
AVG ANNUAL ACCTS	1,670	1,650	1,630	1,610	1,590		
AVG ANNUAL USE(BU)	17,300	17,480	17,670	17,865	18,055	1.12	2.36
SALES (1000 BU)	28,890	28,840	28,800	28,760	28,710	-0.23	-1.31
GEN WITH HEAT							
YEAR END ACCTS	66,500	69,500	72,600	75,700	78,900	4.41	4.41
AVG ANNUAL ACCTS	65,050	68,000	71,050	74,150	77,300		
AVG ANNUAL USE(BU)	8,470	8,410	8,360	8,310	8,270	-0.62	-1.00
SALES (1000 BU)	550,900	572,000	593,800	616,200	638,900	3.78	3.39
SEASONAL							
YEAR END ACCTS	53	53	55	55	56	1.49	1.62
AVG ANNUAL ACCTS	53	53	55	55	56		
AVG ANNUAL USE(BU)	26,980	26,980	27,090	27,090	27,140	-0.12	-0.24
SALES (1000 BU)	1,430	1,430	1,490	1,490	1,520	1.37	1.13
BC HYDRO USE							
YEAR END ACCTS	91	92	93	94	95	1.09	1.07
AVG ANNUAL ACCTS	91	92	93	94	95		
AVG ANNUAL USE(BU)	12,090	12,170	12,150	12,130	12,210	0.16	0.35
SALES (1000 BU)	1,100	1,120	1,130	1,140	1,160	1.25	1.55
CNG(FIRM)							
YEAR END ACCTS	16	18	19	20	21	5.59	0.00
AVG ANNUAL ACCTS	16	18	19	20	21		
AVG ANNUAL USE(BU)	729,400	663,300	642,600	621,500	601,900	-3.32	0.00
SALES (1000 BU)	11,670	11,940	12,210	12,430	12,640	2.09	0.00
TOTAL FIRM							
YEAR END ACCTS	497,415	509,248	521,382	533,614	546,147	2.37	2.47
AVG ANNUAL ACCTS	491,655	503,338	515,322	527,504	539,887		
AVG ANNUAL USE(BU)	2,110	2,116	2,121	2,126	2,131	0.24	-0.26
SALES (1000 BU)	1,037,530	1,064,840	1,092,920	1,121,480	1,150,260	2.60	2.23
CNG(INTERRUP.)							
YEAR END ACCTS	5	6	6	6	6	3.71	0.00
AVG ANNUAL ACCTS	5	6	6	6	6		
AVG ANNUAL USE(BU)	632,000	551,700	576,700	593,300	610,000	0.13	0.00
SALES (1000 BU)	3,160	3,310	3,460	3,560	3,660	3.85	0.00
OTHER INTERRUP.							
YEAR END ACCTS	121	122	123	125	126	1.15	1.35
AVG ANNUAL ACCTS	121	122	123	125	126		
AVG ANNUAL USE(BU)	2,286,000	2,299,200	2,312,200	2,307,200	2,320,600	0.24	0.17
SALES (1000 BU)	276,600	280,500	284,400	288,400	292,400	1.40	1.48
TOTAL INTERRUPT.							
YEAR END ACCTS	126	128	129	131	132	1.26	1.58
AVG ANNUAL ACCTS	126	128	129	131	132		
AVG ANNUAL USE(BU)	2,220,300	2,217,300	2,231,500	2,228,700	2,242,900	0.17	0.01
SALES (1000 BU)	279,760	283,810	287,860	291,960	296,060	1.43	1.54
TOTAL SALES							
YEAR END ACCTS	497,541	509,376	521,511	533,745	546,279	2.37	2.47
AVG ANNUAL ACCTS	491,781	503,466	515,451	527,635	540,019		
AVG ANNUAL USE(BU)	2,679	2,679	2,679	2,679	2,678	-0.01	-0.41
SALES (1000 BU)	1,317,290	1,348,650	1,380,780	1,413,440	1,446,320	2.35	2.08

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-8

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 1 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1 METROPOLITAN

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	8,913	8,913	8,500	8,100	7,700	7,300	6,900	6,500	-5.13
AVG ANNUAL ACCTS	9,446	9,446	8,705	8,300	7,900	7,500	7,100	6,700	
AVG ANNUAL USE(BU)	687	680	725	745	765	785	805	825	3.27
SALES (1000 BU)	6,490	6,420	6,310	6,180	6,040	5,890	5,720	5,530	-2.46
RES WITH HEAT									
YEAR END ACCTS	175,246	175,246	180,400	186,000	191,600	197,300	203,100	208,400	2.93
AVG ANNUAL ACCTS	171,373	171,373	177,800	183,200	188,800	194,450	200,200	205,750	
AVG ANNUAL USE(BU)	1,328	1,345	1,331	1,317	1,299	1,276	1,254	1,233	-1.44
SALES (1000 BU)	227,586	230,500	236,700	241,300	245,300	248,100	251,100	253,700	1.61
GEN WITHOUT HEAT									
YEAR END ACCTS	3,005	3,005	2,800	2,600	2,400	2,250	2,100	2,000	-6.56
AVG ANNUAL ACCTS	3,078	3,078	2,905	2,700	2,500	2,325	2,175	2,050	
AVG ANNUAL USE(BU)	8,796	8,800	8,800	9,400	9,950	10,150	10,300	10,400	2.82
SALES (1000 BU)	27,073	27,090	25,560	25,380	24,870	23,600	22,400	21,320	-3.91
GEN WITH HEAT									
YEAR END ACCTS	22,214	22,214	22,600	23,000	23,500	24,200	25,100	26,000	2.66
AVG ANNUAL ACCTS	21,810	21,810	22,405	22,800	23,250	23,850	24,650	25,550	
AVG ANNUAL USE(BU)	11,121	11,250	10,647	10,946	11,178	11,020	10,846	10,682	-0.86
SALES (1000 BU)	242,542	245,350	238,500	249,600	259,900	262,800	267,400	272,900	1.79
SEASONAL									
YEAR END ACCTS	19	19	20	20	21	21	22	22	2.47
AVG ANNUAL ACCTS	20	20	20	20	21	21	22	22	
AVG ANNUAL USE(BU)	25,150	25,000	25,500	25,850	26,100	26,300	26,400	26,500	0.98
SALES (1000 BU)	503	500	510	520	550	550	580	580	2.50
BC HYDRO USE									
YEAR END ACCTS	44	44	45	46	46	47	47	48	1.46
AVG ANNUAL ACCTS	42	42	45	46	46	47	47	48	
AVG ANNUAL USE(BU)	11,297	11,500	11,800	12,000	12,200	12,300	12,400	12,500	1.40
SALES (1000 BU)	474	480	530	550	560	580	580	600	3.79
CNG(FIRM)									
YEAR END ACCTS			1	1	2	2	3	4	999.00
AVG ANNUAL ACCTS			1	1	2	2	3	4	
AVG ANNUAL USE(BU)			10,000	50,000	85,000	345,000	546,700	725,000	999.00
SALES (1000 BU)			10	50	170	690	1,640	2,900	0.00
TOTAL FIRM									
YEAR END ACCTS	209,441	209,441	214,366	219,767	225,269	231,120	237,272	242,974	2.51
AVG ANNUAL ACCTS	205,769	205,769	211,881	217,067	222,519	228,195	234,197	240,124	
AVG ANNUAL USE(BU)	2,453	2,480	2,398	2,412	2,415	2,376	2,346	2,322	-1.09
SALES (1000 BU)	504,668	510,340	508,120	523,580	537,390	542,210	549,420	557,530	1.48
CNG(INTERRUP.)									
YEAR END ACCTS			1	1	1	2	2	2	999.00
AVG ANNUAL ACCTS			1	1	1	2	2	2	
AVG ANNUAL USE(BU)			50,000	270,000	750,000	495,000	520,000	580,000	999.00
SALES (1000 BU)			50	270	750	990	1,040	1,160	0.00
OTHER INTERRUP.									
YEAR END ACCTS	75	75	81	81	82	83	84	85	2.11
AVG ANNUAL ACCTS	76	76	78	81	82	83	84	85	
AVG ANNUAL USE(BU)	2,505,303	2,269,900	2,265,400	2,218,500	2,229,300	2,239,800	2,250,000	2,261,200	-0.06
SALES (1000 BU)	190,403	172,509	176,700	179,700	182,800	185,900	189,000	192,200	1.82
TOTAL INTERRUPT.									
YEAR END ACCTS	75	75	82	82	83	85	86	87	2.50
AVG ANNUAL ACCTS	76	76	79	82	83	85	86	87	
AVG ANNUAL USE(BU)	2,505,300	2,269,900	2,237,300	2,194,800	2,211,400	2,198,700	2,209,800	2,222,500	-0.35
SALES (1000 BU)	190,403	172,509	176,750	179,970	183,550	186,890	190,040	193,360	1.92
TOTAL SALES									
YEAR END ACCTS	209,516	209,516	214,448	219,849	225,352	231,205	237,358	243,061	2.51
AVG ANNUAL ACCTS	205,845	205,845	211,960	217,149	222,602	228,280	234,283	240,211	
AVG ANNUAL USE(BU)	3,377	3,317	3,231	3,240	3,239	3,194	3,156	3,126	-0.98
SALES (1000 BU)	695,071	682,849	684,870	703,550	720,940	729,100	739,460	750,890	1.60

NOTES:
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2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

DETAILED FORECAST 20 FISCAL YEAR NATURAL GAS LOW PROJECTION OF ACCOUNTS AND SALES PAGE 2 OF 4

1982 EDITION REVISION# 1 (BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

METROPOLITAN

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	6,200	5,900	5,600	5,300	5,000	-5.11	-5.12
AVG ANNUAL ACCTS	6,350	6,050	5,750	5,450	5,150		
AVG ANNUAL USE(BU)	840	855	870	885	900	1.76	2.58
SALES (1000 BU)	5,330	5,170	5,000	4,820	4,630	-3.49	-2.93
RES WITH HEAT							
YEAR END ACCTS	212,300	214,800	217,300	220,100	223,000	1.36	2.21
AVG ANNUAL ACCTS	210,350	213,550	216,050	218,700	221,550		
AVG ANNUAL USE(BU)	1,212	1,191	1,170	1,148	1,141	-1.54	-1.48
SALES (1000 BU)	254,900	254,300	252,800	251,100	252,800	-0.07	0.84
GEN WITHOUT HEAT							
YEAR END ACCTS	1,900	1,800	1,700	1,600	1,500	-5.59	-6.12
AVG ANNUAL ACCTS	1,950	1,850	1,750	1,650	1,550		
AVG ANNUAL USE(BU)	10,450	10,500	10,550	10,600	10,650	0.48	1.75
SALES (1000 BU)	20,380	19,430	18,460	17,490	16,510	-4.99	-4.40
GEN WITH HEAT							
YEAR END ACCTS	27,000	28,000	29,100	30,200	31,400	3.85	3.20
AVG ANNUAL ACCTS	26,500	27,500	28,550	29,650	30,800		
AVG ANNUAL USE(BU)	10,500	10,333	10,168	10,018	9,870	-1.57	-1.18
SALES (1000 BU)	278,300	284,200	290,300	297,000	304,000	2.18	1.97
SEASONAL							
YEAR END ACCTS	23	23	24	24	25	2.59	2.53
AVG ANNUAL ACCTS	23	23	24	24	25		
AVG ANNUAL USE(BU)	26,600	26,700	26,800	26,900	27,000	0.37	0.70
SALES (1000 BU)	610	610	640	650	680	3.23	2.83
BC HYDRO USE							
YEAR END ACCTS	48	49	49	50	50	0.82	1.17
AVG ANNUAL ACCTS	48	49	49	50	50		
AVG ANNUAL USE(BU)	12,600	12,700	12,800	12,900	13,000	0.79	1.12
SALES (1000 BU)	600	620	630	640	650	1.61	2.79
CNG(FIRM)							
YEAR END ACCTS	4	5	5	6	7	11.84	0.00
AVG ANNUAL ACCTS	4	5	5	6	7		
AVG ANNUAL USE(BU)	1,057,500	1,086,000	1,210,000	1,033,300	907,100	4.58	0.00
SALES (1000 BU)	4,230	5,430	6,050	6,200	6,350	16.97	0.00
TOTAL FIRM							
YEAR END ACCTS	247,475	250,577	253,778	257,280	260,982	1.44	2.02
AVG ANNUAL ACCTS	245,225	249,027	252,178	255,530	259,132		
AVG ANNUAL USE(BU)	2,301	2,288	2,276	2,262	2,260	-0.54	-0.84
SALES (1000 BU)	564,350	569,760	573,880	577,900	585,620	0.99	1.26
CNG(INTERRUP.)							
YEAR END ACCTS	2	2	3	3	3	8.45	0.00
AVG ANNUAL ACCTS	2	2	3	3	3		
AVG ANNUAL USE(BU)	685,000	740,000	516,700	540,000	563,300	-0.58	0.00
SALES (1000 BU)	1,370	1,480	1,550	1,620	1,690	7.82	0.00
OTHER INTERRUP.							
YEAR END ACCTS	86	87	88	89	90	1.15	1.67
AVG ANNUAL ACCTS	86	87	88	89	90		
AVG ANNUAL USE(BU)	2,270,900	2,280,500	2,290,900	2,301,100	2,312,200	0.45	0.17
SALES (1000 BU)	195,300	198,400	201,600	204,800	208,100	1.60	1.72
TOTAL INTERRUPT.							
YEAR END ACCTS	88	89	91	92	93	1.34	1.97
AVG ANNUAL ACCTS	88	89	91	92	93		
AVG ANNUAL USE(BU)	2,234,900	2,245,800	2,232,400	2,243,700	2,255,800	0.30	-0.06
SALES (1000 BU)	196,670	199,880	203,150	206,420	209,790	1.64	1.79
TOTAL SALES							
YEAR END ACCTS	247,563	250,666	253,869	257,372	261,075	1.44	2.02
AVG ANNUAL ACCTS	245,313	249,116	252,269	255,622	259,225		
AVG ANNUAL USE(BU)	3,102	3,089	3,080	3,068	3,068	-0.37	-0.71
SALES (1000 BU)	761,020	769,640	777,030	784,320	795,410	1.16	1.40

NOTES:
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2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-8

N A T U R A L   G A S

DETAILED FORECAST   20   FISCAL YEAR   LOW   PROJECTION OF ACCOUNTS AND SALES   PAGE 3 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION   REVISION# 1
METROPOLITAN

	1993/94	1994/95	1995/96	1996/97	1997/98	AVG. ANNUAL GROWTH 5 YRS(%)	 16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	4,750	4,500	4,250	4,000	3,750	-5.59	-5.27
AVG ANNUAL ACCTS	4,875	4,625	4,375	4,125	3,875		
AVG ANNUAL USE(BU)	910	920	930	940	950	1.09	2.11
SALES (1000 BU)	4,440	4,250	4,070	3,880	3,680	-4.49	-3.42
RES WITH HEAT							
YEAR END ACCTS	226,000	229,100	232,300	235,700	239,100	1.40	1.96
AVG ANNUAL ACCTS	224,500	227,550	230,700	234,000	237,400		
AVG ANNUAL USE(BU)	1,133	1,125	1,117	1,109	1,101	-0.71	-1.24
SALES (1000 BU)	254,400	256,000	257,700	259,500	261,400	0.67	0.79
GEN WITHOUT HEAT							
YEAR END ACCTS	1,450	1,400	1,350	1,300	1,250	-3.58	-5.33
AVG ANNUAL ACCTS	1,475	1,425	1,375	1,325	1,275		
AVG ANNUAL USE(BU)	10,675	10,700	10,725	10,750	10,775	0.23	1.27
SALES (1000 BU)	15,750	15,250	14,750	14,240	13,740	-3.61	-4.15
GEN WITH HEAT							
YEAR END ACCTS	32,600	33,900	35,200	36,600	38,000	3.89	3.41
AVG ANNUAL ACCTS	32,000	33,250	34,550	35,900	37,300		
AVG ANNUAL USE(BU)	9,743	9,671	9,608	9,541	9,483	-0.80	-1.06
SALES (1000 BU)	311,800	321,600	332,000	342,500	353,700	3.07	2.31
SEASONAL							
YEAR END ACCTS	25	26	26	27	27	1.55	2.22
AVG ANNUAL ACCTS	25	26	26	27	27		
AVG ANNUAL USE(BU)	27,050	27,100	27,150	27,200	27,250	0.18	0.54
SALES (1000 BU)	680	700	710	730	740	1.71	2.48
BC HYDRO USE							
YEAR END ACCTS	51	51	52	52	53	1.17	1.17
AVG ANNUAL ACCTS	51	51	52	52	53		
AVG ANNUAL USE(BU)	13,050	13,100	13,150	13,200	13,250	0.38	0.89
SALES (1000 BU)	670	670	680	690	700	1.49	2.39
CNG(FIRM)							
YEAR END ACCTS	7	8	9	9	10	7.39	0.00
AVG ANNUAL ACCTS	7	8	9	9	10		
AVG ANNUAL USE(BU)	927,100	831,300	755,600	774,400	712,000	-4.73	0.00
SALES (1000 BU)	6,490	6,650	6,800	6,970	7,120	2.32	0.00
TOTAL FIRM							
YEAR END ACCTS	264,883	268,985	273,187	277,688	282,190	1.57	1.88
AVG ANNUAL ACCTS	262,933	266,935	271,087	275,438	279,940		
AVG ANNUAL USE(BU)	2,260	2,267	2,275	2,282	2,290	0.26	-0.50
SALES (1000 BU)	594,230	605,120	616,710	628,510	641,080	1.83	1.44
CNG(INTERRUP.)							
YEAR END ACCTS	3	3	3	3	3	0.00	0.00
AVG ANNUAL ACCTS	3	3	3	3	3		
AVG ANNUAL USE(BU)	590,000	616,700	650,000	673,300	706,700	4.64	0.00
SALES (1000 BU)	1,770	1,850	1,950	2,020	2,120	4.64	0.00
OTHER INTERRUP.							
YEAR END ACCTS	91	92	93	94	95	1.09	1.49
AVG ANNUAL ACCTS	91	92	93	94	95		
AVG ANNUAL USE(BU)	2,320,900	2,330,400	2,339,800	2,350,000	2,360,000	0.41	0.24
SALES (1000 BU)	211,200	214,400	217,600	220,900	224,200	1.50	1.65
TOTAL INTERRUPT.							
YEAR END ACCTS	94	95	96	97	98	1.05	1.69
AVG ANNUAL ACCTS	94	95	96	97	98		
AVG ANNUAL USE(BU)	2,265,600	2,276,300	2,287,000	2,298,100	2,309,400	0.47	0.11
SALES (1000 BU)	212,970	216,250	219,550	222,920	226,320	1.53	1.71
TOTAL SALES							
YEAR END ACCTS	264,977	269,080	273,283	277,785	282,288	1.57	1.88
AVG ANNUAL ACCTS	263,027	267,030	271,183	275,535	280,038		
AVG ANNUAL USE(BU)	3,069	3,076	3,084	3,090	3,097	0.19	-0.43
SALES (1000 BU)	807,200	821,370	836,260	851,430	867,400	1.75	1.51

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-8

DETAILED FORECAST　　20　FISCAL YEAR　LOW　PROJECTION OF ACCOUNTS AND SALES　PAGE 4 OF 4

1982 EDITION　REVISION# 1

NATURAL GAS

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
METROPOLITAN

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH 5 YRS(%)	21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	3,550	3,350	3,150	2,950	2,750	-6.01	-5.45
AVG ANNUAL ACCTS	3,650	3,450	3,250	3,050	2,850		
AVG ANNUAL USE(BU)	955	960	965	970	975	0.52	1.73
SALES (1000 BU)	3,490	3,310	3,140	2,960	2,780	-5.45	-3.91
RES WITH HEAT							
YEAR END ACCTS	242,700	246,300	250,000	253,700	257,500	1.49	1.85
AVG ANNUAL ACCTS	240,900	244,500	248,150	251,850	255,600		
AVG ANNUAL USE(BU)	1,094	1,087	1,081	1,074	1,067	-0.63	-1.10
SALES (1000 BU)	263,500	265,800	268,300	270,500	272,700	0.85	0.80
GEN WITHOUT HEAT							
YEAR END ACCTS	1,225	1,200	1,175	1,150	1,125	-2.09	-4.57
AVG ANNUAL ACCTS	1,240	1,215	1,190	1,165	1,140		
AVG ANNUAL USE(BU)	10,795	10,815	10,835	10,855	10,875	0.18	1.01
SALES (1000 BU)	13,390	13,140	12,890	12,650	12,400	-2.03	-3.65
GEN WITH HEAT							
YEAR END ACCTS	39,500	41,000	42,600	44,200	45,900	3.85	3.52
AVG ANNUAL ACCTS	38,750	40,250	41,800	43,400	45,050		
AVG ANNUAL USE(BU)	9,418	9,360	9,300	9,246	9,192	-0.62	-0.96
SALES (1000 BU)	364,900	376,700	388,700	401,300	414,100	3.20	2.52
SEASONAL							
YEAR END ACCTS	28	28	29	29	30	2.13	2.20
AVG ANNUAL ACCTS	28	28	29	29	30		
AVG ANNUAL USE(BU)	27,275	27,300	27,325	27,350	27,375	0.09	0.43
SALES (1000 BU)	760	760	790	790	820	2.07	2.38
BC HYDRO USE							
YEAR END ACCTS	53	54	54	55	55	0.74	1.07
AVG ANNUAL ACCTS	53	54	54	55	55		
AVG ANNUAL USE(BU)	13,275	13,300	13,325	13,350	13,375	0.19	0.72
SALES (1000 BU)	700	720	720	730	740	1.12	2.08
CNG(FIRM)							
YEAR END ACCTS	10	11	12	12	13	5.39	0.00
AVG ANNUAL ACCTS	10	11	12	12	13		
AVG ANNUAL USE(BU)	729,000	678,200	635,800	647,500	607,700	-3.12	0.00
SALES (1000 BU)	7,290	7,460	7,630	7,770	7,900	2.10	0.00
TOTAL FIRM							
YEAR END ACCTS	287,066	291,943	297,020	302,096	307,373	1.72	1.84
AVG ANNUAL ACCTS	284,631	289,508	294,485	299,561	304,738		
AVG ANNUAL USE(BU)	2,298	2,307	2,316	2,326	2,335	0.39	-0.29
SALES (1000 BU)	654,030	667,890	682,170	696,700	711,440	2.10	1.59
CNG(INTERRUP.)							
YEAR END ACCTS	3	4	4	4	4	5.92	0.00
AVG ANNUAL ACCTS	3	4	4	4	4		
AVG ANNUAL USE(BU)	736,700	580,000	605,000	622,500	640,000	-1.96	0.00
SALES (1000 BU)	2,210	2,320	2,420	2,490	2,560	3.84	0.00
OTHER INTERRUP.							
YEAR END ACCTS	96	97	98	99	100	1.03	1.38
AVG ANNUAL ACCTS	96	97	98	99	100		
AVG ANNUAL USE(BU)	2,367,700	2,376,300	2,384,700	2,393,900	2,403,000	0.36	0.27
SALES (1000 BU)	227,300	230,500	233,700	237,000	240,300	1.40	1.59
TOTAL INTERRUPT.							
YEAR END ACCTS	99	101	102	103	104	1.20	1.57
AVG ANNUAL ACCTS	99	101	102	103	104		
AVG ANNUAL USE(BU)	2,318,300	2,305,100	2,314,900	2,325,100	2,335,200	0.22	0.14
SALES (1000 BU)	229,510	232,820	236,120	239,490	242,860	1.42	1.64
TOTAL SALES							
YEAR END ACCTS	287,165	292,044	297,122	302,199	307,477	1.72	1.84
AVG ANNUAL ACCTS	284,730	289,609	294,587	299,664	304,842		
AVG ANNUAL USE(BU)	3,103	3,110	3,117	3,124	3,130	0.21	-0.28
SALES (1000 BU)	883,540	900,710	918,290	936,190	954,300	1.93	1.61

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-9

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 1 OF 4

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

1982 EDITION REVISION# 1 FRASER VALLEY

	FISCAL 1981/82 ACTUAL	FISCAL 1981/82 NORMAL	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	GROWTH RATE (%)
RES WITHOUT HEAT									
YEAR END ACCTS	1,185	1,185	1,250	1,300	1,350	1,400	1,450	1,500	4.01
AVG ANNUAL ACCTS	1,173	1,173	1,220	1,275	1,325	1,375	1,425	1,475	
AVG ANNUAL USE(BU)	956	900	910	920	930	940	945	950	0.91
SALES (1000 BU)	1,121	1,060	1,110	1,170	1,230	1,290	1,350	1,400	4.75
RES WITH HEAT									
YEAR END ACCTS	106,524	106,524	109,600	113,100	116,800	120,900	125,000	129,100	3.26
AVG ANNUAL ACCTS	104,568	104,568	108,050	111,350	114,950	118,850	122,950	127,050	
AVG ANNUAL USE(BU)	1,212	1,225	1,214	1,205	1,182	1,155	1,130	1,107	-1.67
SALES (1000 BU)	126,707	128,100	131,200	134,200	135,900	137,300	138,900	140,600	1.56
GEN WITHOUT HEAT									
YEAR END ACCTS	347	347	350	355	360	365	370	375	1.30
AVG ANNUAL ACCTS	345	345	350	355	360	365	370	375	
AVG ANNUAL USE(BU)	28,965	31,250	30,000	31,800	33,500	33,900	34,250	34,500	1.66
SALES (1000 BU)	9,993	10,780	10,500	11,290	12,060	12,370	12,670	12,940	3.09
GEN WITH HEAT									
YEAR END ACCTS	9,696	9,696	10,200	10,600	11,100	11,800	12,700	13,600	5.80
AVG ANNUAL ACCTS	9,222	9,222	9,950	10,400	10,850	11,450	12,250	13,150	
AVG ANNUAL USE(BU)	7,737	7,800	7,504	7,810	8,001	7,921	7,826	7,760	-0.09
SALES (1000 BU)	71,355	71,920	74,700	81,200	86,800	90,700	95,900	102,000	6.00
SEASONAL									
YEAR END ACCTS	21	21	20	20	20	21	21	21	0.00
AVG ANNUAL ACCTS	22	22	21	20	20	21	21	21	
AVG ANNUAL USE(BU)	28,636	32,000	31,000	30,000	29,500	29,000	28,700	28,500	-1.91
SALES (1000 BU)	630	700	650	600	590	610	600	600	-2.54
BC HYDRO USE									
YEAR END ACCTS	32	32	32	33	33	33	34	34	1.02
AVG ANNUAL ACCTS	32	32	32	33	33	33	34	34	
AVG ANNUAL USE(BU)	11,840	11,300	11,250	11,200	11,150	11,100	11,050	11,000	-0.45
SALES (1000 BU)	379	360	360	370	370	370	380	370	0.46
CNG(FIRM)									
YEAR END ACCTS			1	1	1	2	2	2999.00	
AVG ANNUAL ACCTS			1	1	1	2	2	2	
AVG ANNUAL USE(BU)			10,000	30,000	100,000	205,000	495,000	870,000999.00	
SALES (1000 BU)			10	30	100	410	990	1,740	0.00
TOTAL FIRM									
YEAR END ACCTS	117,805	117,805	121,453	125,409	129,664	134,521	139,577	144,632	3.48
AVG ANNUAL ACCTS	115,362	115,362	119,624	123,434	127,539	132,096	137,052	142,107	
AVG ANNUAL USE(BU)	1,822	1,846	1,827	1,854	1,859	1,840	1,830	1,827	-0.17
SALES (1000 BU)	210,185	212,920	218,530	228,860	237,050	243,050	250,790	259,650	3.36
CNG(INTERRUP.)									
YEAR END ACCTS			1	1	1	1	1	1999.00	
AVG ANNUAL ACCTS			1	1	1	1	1	1	
AVG ANNUAL USE(BU)			20,000	120,000	320,000	420,000	450,000	500,000999.00	
SALES (1000 BU)			20	120	320	420	450	500	0.00
OTHER INTERRUP.									
YEAR END ACCTS	20	20	19	19	20	20	20	21	0.82
AVG ANNUAL ACCTS	20	20	20	19	20	20	20	21	
AVG ANNUAL USE(BU)	1,722,050	2,122,800	1,915,000	2,052,600	1,980,000	2,015,000	2,050,000	1,985,700	-1.11
SALES (1000 BU)	34,441	42,456	38,300	39,000	39,600	40,300	41,000	41,700	-0.30
TOTAL INTERRUPT.									
YEAR END ACCTS	20	20	20	20	21	21	21	22	1.60
AVG ANNUAL ACCTS	20	20	21	20	21	21	21	22	
AVG ANNUAL USE(BU)	1,722,100	2,122,800	1,824,800	1,956,000	1,901,000	1,939,000	1,973,800	1,918,200	-1.67
SALES (1000 BU)	34,441	42,456	38,320	39,120	39,920	40,720	41,450	42,200	-0.10
TOTAL SALES									
YEAR END ACCTS	117,825	117,825	121,473	125,429	129,685	134,542	139,598	144,654	3.48
AVG ANNUAL ACCTS	115,382	115,382	119,645	123,454	127,560	132,117	137,073	142,129	
AVG ANNUAL USE(BU)	2,120	2,213	2,147	2,171	2,171	2,148	2,132	2,124	-0.68
SALES (1000 BU)	244,626	255,376	256,850	267,980	276,970	283,770	292,240	301,850	2.83

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-9

DETAILED FORECAST 20 FISCAL YEAR LOW

NATURAL GAS
PROJECTION OF ACCOUNTS AND SALES

PAGE 2 OF 4

1982 EDITION REVISION# 1

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
FRASER VALLEY

	1988/89	1989/90	1990/91	1991/92	1992/93	AVG. ANNUAL GROWTH 5 YRS(%)	11 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	1,550	1,600	1,650	1,700	1,750	3.13	3.61
AVG ANNUAL ACCTS	1,525	1,575	1,625	1,675	1,725		
AVG ANNUAL USE(BU)	952	954	956	958	960	0.21	0.59
SALES (1000 BU)	1,450	1,500	1,550	1,600	1,660	3.47	4.16
RES WITH HEAT							
YEAR END ACCTS	133,400	137,800	142,200	146,600	151,200	3.21	3.24
AVG ANNUAL ACCTS	131,250	135,600	140,000	144,400	148,900		
AVG ANNUAL USE(BU)	1,084	1,071	1,060	1,050	1,039	-1.26	-1.49
SALES (1000 BU)	142,300	145,200	148,400	151,600	154,700	1.93	1.73
GEN WITHOUT HEAT							
YEAR END ACCTS	380	385	390	395	400	1.30	1.30
AVG ANNUAL ACCTS	380	385	390	395	400		
AVG ANNUAL USE(BU)	34,700	34,900	35,100	35,300	35,500	0.57	1.17
SALES (1000 BU)	13,190	13,440	13,690	13,940	14,200	1.88	2.54
GEN WITH HEAT							
YEAR END ACCTS	14,600	15,600	16,700	17,800	19,000	6.92	6.31
AVG ANNUAL ACCTS	14,100	15,100	16,150	17,250	18,400		
AVG ANNUAL USE(BU)	7,651	7,565	7,483	7,421	7,362	-1.05	-0.52
SALES (1000 BU)	107,900	114,200	120,900	128,000	135,500	5.84	5.93
SEASONAL							
YEAR END ACCTS	22	22	22	23	23	1.84	0.83
AVG ANNUAL ACCTS	22	22	22	23	23		
AVG ANNUAL USE(BU)	28,300	28,100	27,900	27,700	27,500	-0.71	-1.37
SALES (1000 BU)	620	620	610	640	630	0.98	-0.95
BC HYDRO USE							
YEAR END ACCTS	34	35	35	35	36	1.15	1.08
AVG ANNUAL ACCTS	34	35	35	35	36		
AVG ANNUAL USE(BU)	10,950	10,900	10,850	10,800	10,750	-0.46	-0.45
SALES (1000 BU)	370	380	380	380	390	1.06	0.73
CNG(FIRM)							
YEAR END ACCTS	3	3	3	4	4	14.87	0.00
AVG ANNUAL ACCTS	3	3	3	4	4		
AVG ANNUAL USE(BU)	843,300	1,086,700	1,210,000	930,000	952,500	1.83	0.00
SALES (1000 BU)	2,530	3,260	3,630	3,720	3,810	16.97	0.00
TOTAL FIRM							
YEAR END ACCTS	149,989	155,445	161,000	166,557	172,413	3.58	3.52
AVG ANNUAL ACCTS	147,314	152,720	158,225	163,782	169,488		
AVG ANNUAL USE(BU)	1,822	1,824	1,828	1,831	1,834	0.08	-0.06
SALES (1000 BU)	268,360	278,600	289,160	299,880	310,890	3.67	3.50
CNG(INTERRUP.)							
YEAR END ACCTS	1	1	1	1	1	0.00	0.00
AVG ANNUAL ACCTS	1	1	1	1	1		
AVG ANNUAL USE(BU)	590,000	630,000	670,000	690,000	720,000	7.57	0.00
SALES (1000 BU)	590	630	670	690	720	7.57	0.00
OTHER INTERRUP.							
YEAR END ACCTS	21	22	22	22	23	1.84	1.28
AVG ANNUAL ACCTS	21	22	22	22	23		
AVG ANNUAL USE(BU)	2,019,000	1,954,500	1,986,400	2,018,200	1,960,900	-0.25	-0.72
SALES (1000 BU)	42,400	43,000	43,700	44,400	45,100	1.58	0.55
TOTAL INTERRUPT.							
YEAR END ACCTS	22	23	23	23	24	1.76	1.67
AVG ANNUAL ACCTS	22	23	23	23	24		
AVG ANNUAL USE(BU)	1,954,100	1,897,000	1,929,100	1,960,400	1,909,200	-0.09	-0.96
SALES (1000 BU)	42,990	43,630	44,370	45,090	45,820	1.66	0.70
TOTAL SALES							
YEAR END ACCTS	150,011	155,468	161,023	166,580	172,437	3.58	3.52
AVG ANNUAL ACCTS	147,336	152,743	158,248	163,805	169,512		
AVG ANNUAL USE(BU)	2,113	2,110	2,108	2,106	2,104	-0.19	-0.46
SALES (1000 BU)	311,350	322,230	333,530	344,970	356,710	3.40	3.08

NOTES:
1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-9

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 3 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1
FRASER VALLEY

	1993/94	1994/95	1995/96	1996/97	1997/98	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 16 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	1,800	1,850	1,900	1,950	2,000	2.71	3.33
AVG ANNUAL ACCTS	1,775	1,825	1,875	1,925	1,975		
AVG ANNUAL USE(BU)	961	962	963	964	965	0.10	0.44
SALES (1000 BU)	1,710	1,760	1,810	1,860	1,910	2.85	3.75
RES WITH HEAT							
YEAR END ACCTS	155,800	160,600	165,500	170,500	175,600	3.04	3.17
AVG ANNUAL ACCTS	153,500	158,200	163,050	168,000	173,050		
AVG ANNUAL USE(BU)	1,029	1,018	1,008	998	988	-1.00	-1.33
SALES (1000 BU)	158,000	161,000	164,400	167,700	171,000	2.02	1.82
GEN WITHOUT HEAT							
YEAR END ACCTS	405	410	415	420	425	1.22	1.28
AVG ANNUAL ACCTS	405	410	415	420	425		
AVG ANNUAL USE(BU)	35,600	35,700	35,800	35,900	36,000	0.28	0.89
SALES (1000 BU)	14,420	14,640	14,860	15,080	15,300	1.50	2.21
GEN WITH HEAT							
YEAR END ACCTS	20,200	21,500	22,800	24,200	25,600	6.14	6.26
AVG ANNUAL ACCTS	19,600	20,850	22,150	23,500	24,900		
AVG ANNUAL USE(BU)	7,300	7,239	7,193	7,147	7,114	-0.68	-0.57
SALES (1000 BU)	143,100	150,900	159,300	168,000	177,100	5.50	5.79
SEASONAL							
YEAR END ACCTS	23	24	24	24	25	1.68	1.10
AVG ANNUAL ACCTS	23	24	24	24	25		
AVG ANNUAL USE(BU)	27,400	27,300	27,200	27,100	27,000	-0.37	-1.06
SALES (1000 BU)	630	660	650	650	680	1.54	-0.18
BC HYDRO USE							
YEAR END ACCTS	36	36	37	37	37	0.55	0.91
AVG ANNUAL ACCTS	36	36	37	37	37		
AVG ANNUAL USE(BU)	10,725	10,700	10,675	10,650	10,625	-0.23	-0.38
SALES (1000 BU)	390	390	390	390	390	0.00	0.50
CNG(FIRM)							
YEAR END ACCTS	5	5	5	6	6	8.45	0.00
AVG ANNUAL ACCTS	5	5	5	6	6		
AVG ANNUAL USE(BU)	780,000	798,000	816,000	696,700	713,300	-5.62	0.00
SALES (1000 BU)	3,900	3,990	4,080	4,180	4,280	2.35	0.00
TOTAL FIRM							
YEAR END ACCTS	178,269	184,425	190,681	197,137	203,693	3.39	3.48
AVG ANNUAL ACCTS	175,344	181,350	187,556	193,912	200,418		
AVG ANNUAL USE(BU)	1,837	1,838	1,842	1,845	1,849	0.16	0.01
SALES (1000 BU)	322,150	333,340	345,490	357,860	370,660	3.58	3.53
CNG(INTERRUP.)							
YEAR END ACCTS	2	2	2	2	2	14.87	0.00
AVG ANNUAL ACCTS	2	2	2	2	2		
AVG ANNUAL USE(BU)	380,000	395,000	415,000	435,000	455,000	-8.77	0.00
SALES (1000 BU)	760	790	830	870	910	4.80	0.00
OTHER INTERRUP.							
YEAR END ACCTS	23	23	24	24	24	0.85	1.15
AVG ANNUAL ACCTS	23	23	24	24	24		
AVG ANNUAL USE(BU)	1,991,300	2,021,700	1,966,700	1,995,800	2,025,000	0.65	-0.29
SALES (1000 BU)	45,800	46,500	47,200	47,900	48,600	1.51	0.85
TOTAL INTERRUPT.							
YEAR END ACCTS	25	25	26	26	26	1.61	1.65
AVG ANNUAL ACCTS	25	25	26	26	26		
AVG ANNUAL USE(BU)	1,862,400	1,891,600	1,847,300	1,875,800	1,904,200	-0.05	-0.68
SALES (1000 BU)	46,560	47,290	48,030	48,770	49,510	1.56	0.97
TOTAL SALES							
YEAR END ACCTS	178,294	184,450	190,707	197,163	203,719	3.39	3.48
AVG ANNUAL ACCTS	175,369	181,375	187,582	193,938	200,444		
AVG ANNUAL USE(BU)	2,102	2,099	2,098	2,097	2,096	-0.08	-0.34
SALES (1000 BU)	368,710	380,630	393,520	406,630	420,170	3.33	3.16

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-9

NATURAL GAS

DETAILED FORECAST 20 FISCAL YEAR LOW PROJECTION OF ACCOUNTS AND SALES PAGE 4 OF 4
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)
1982 EDITION REVISION# 1
FRASER VALLEY

	1998/99	1999/00	2000/01	2001/02	2002/03	AVG. ANNUAL GROWTH 5 YRS(%)	AVG. ANNUAL GROWTH 21 YRS(%)
RES WITHOUT HEAT							
YEAR END ACCTS	2,050	2,100	2,150	2,200	2,250	2.38	3.10
AVG ANNUAL ACCTS	2,025	2,075	2,125	2,175	2,225		
AVG ANNUAL USE(BU)	965	965	965	965	965	0.00	0.33
SALES (1000 BU)	1,950	2,000	2,050	2,100	2,150	2.40	3.42
RES WITH HEAT							
YEAR END ACCTS	180,800	186,200	191,700	197,300	203,000	2.94	3.12
AVG ANNUAL ACCTS	178,200	183,500	188,950	194,500	200,150		
AVG ANNUAL USE(BU)	980	972	963	956	948	-0.82	-1.21
SALES (1000 BU)	174,600	178,400	182,000	185,900	189,700	2.10	1.89
GEN WITHOUT HEAT							
YEAR END ACCTS	430	435	440	445	450	1.15	1.25
AVG ANNUAL ACCTS	430	435	440	445	450		
AVG ANNUAL USE(BU)	36,050	36,100	36,150	36,200	36,250	0.14	0.71
SALES (1000 BU)	15,500	15,700	15,910	16,110	16,310	1.29	1.99
GEN WITH HEAT							
YEAR END ACCTS	27,000	28,500	30,000	31,500	33,000	5.21	6.01
AVG ANNUAL ACCTS	26,300	27,750	29,250	30,750	32,250		
AVG ANNUAL USE(BU)	7,072	7,038	7,012	6,989	6,970	-0.41	-0.53
SALES (1000 BU)	186,000	195,300	205,100	214,900	224,800	4.89	5.58
SEASONAL							
YEAR END ACCTS	25	25	26	26	26	0.79	1.02
AVG ANNUAL ACCTS	25	25	26	26	26		
AVG ANNUAL USE(BU)	26,950	26,900	26,850	26,800	26,750	-0.19	-0.85
SALES (1000 BU)	670	670	700	700	700	0.58	0.00
BC HYDRO USE							
YEAR END ACCTS	38	38	39	39	40	1.57	1.07
AVG ANNUAL ACCTS	38	38	39	39	40		
AVG ANNUAL USE(BU)	10,610	10,595	10,580	10,565	10,550	-0.14	-0.33
SALES (1000 BU)	400	400	410	410	420	1.49	0.74
CNG(FIRM)							
YEAR END ACCTS	6	7	7	8	8	5.92	0.00
AVG ANNUAL ACCTS	6	7	7	8	8		
AVG ANNUAL USE(BU)	730,000	640,000	654,300	582,500	592,500	-3.64	0.00
SALES (1000 BU)	4,380	4,480	4,580	4,660	4,740	2.06	0.00
TOTAL FIRM							
YEAR END ACCTS	210,349	217,305	224,362	231,518	238,774	3.23	3.42
AVG ANNUAL ACCTS	207,024	213,830	220,837	227,943	235,149		
AVG ANNUAL USE(BU)	1,852	1,856	1,860	1,864	1,866	0.18	0.05
SALES (1000 BU)	383,500	396,950	410,750	424,780	438,820	3.43	3.50
CNG(INTERRUP.)							
YEAR END ACCTS	2	2	2	2	2	0.00	0.00
AVG ANNUAL ACCTS	2	2	2	2	2		
AVG ANNUAL USE(BU)	475,000	495,000	520,000	535,000	550,000	3.87	0.00
SALES (1000 BU)	950	990	1,040	1,070	1,100	3.87	0.00
OTHER INTERRUP.							
YEAR END ACCTS	25	25	25	26	26	1.61	1.26
AVG ANNUAL ACCTS	25	25	25	26	26		
AVG ANNUAL USE(BU)	1,972,000	2,000,000	2,028,000	1,976,900	2,003,800	-0.21	-0.27
SALES (1000 BU)	49,300	50,000	50,700	51,400	52,100	1.40	0.98
TOTAL INTERRUPT.							
YEAR END ACCTS	27	27	27	28	28	1.49	1.62
AVG ANNUAL ACCTS	27	27	27	28	28		
AVG ANNUAL USE(BU)	1,861,100	1,888,500	1,916,300	1,873,900	1,900,000	-0.04	-0.53
SALES (1000 BU)	50,250	50,990	51,740	52,470	53,200	1.45	1.08
TOTAL SALES							
YEAR END ACCTS	210,376	217,332	224,389	231,546	238,802	3.23	3.42
AVG ANNUAL ACCTS	207,051	213,857	220,864	227,971	235,177		
AVG ANNUAL USE(BU)	2,095	2,095	2,094	2,093	2,092	-0.04	-0.27
SALES (1000 BU)	433,750	447,940	462,490	477,250	492,020	3.21	3.17

NOTES: 1) ACTUAL INT SALES NOT ADJUSTED FOR STRIKES,CURTAILMENTS OR WEATHER.
2) NORMAL INT SALES ADJUSTED FOR STRIKES AND TO 30 AV.WINTER DAYS OF CURTAILMENTS.
3) FORECAST INT SALES ARE NET OF 30 DAYS CURTAILMENT.
4) COMPOUND GROWTH RATES REFLECT COMPULSORY CONSERVATION.
5) INT. CUSTOMERS WITH I/F RATIOS > OR = 0.95 WERE NOT SWITCHED TO FIRM.
6) FORECAST TO 1992/1993 IS OFFICIAL 11 YEAR FORECAST FOR SEPT/82
7) CNG FORECAST PROVIDED BY RESOURCECON.

TABLE 9-10

B. C. HYDRO

COMPARISON OF ACTUAL GAS SALES WITH PROBABLE PROJECTIONS[a] LOWER MAINLAND

(Thousand BU)[a,b]

FORECAST MADE	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87
FALL: 1976	823 550	890 380	987 530	1 060 880	1 136 700						
[c]	A 2.2 N 0.9	A 6.9 N 8.7	A 13.6 N 17.0	A 21.8 N 23.6	A 32.2 N 27.0						
FALL: 1977		839 000	904 200	943 050	978 110	1 018 380					
[c]		A 0.7 N 2.4	A 4.0 N 7.2	A 8.2 N 9.9	A 13.8 N 9.3	A 8.4 N 8.5					
FALL: 1978			868 530	915 700	951 690	987 240	1 023 230				
[c]			A -0.5 N 2.9	A 5.1 N 6.7	A 10.7 N 6.3	A 5.1 N 5.2					
FALL: 1979				888 310	923 190	962 260	998 890	1 037 750			
[c]				A 2.0 N 3.5	A 7.4 N 3.1	A 2.4 N 2.6					
FALL: 1980					887 080	928 660	972 920	1 014 890	1 057 410		
[c]					A 3.2 N -0.9	A -1.2 N -1.0					
FALL: 1981						923 590	964 910	1 008 860	1 045 240	1 081 840	
[c]						A -1.7 N -1.6					
FALL: 1982							945 690	982 570	1 018 030	1 044 800	1 077 050
ACTUAL: not normalized for weather and standard interruption	805 828	833 039	869 040	871 191	859 773	939 697					
ACTUAL: normalized for weather and standard interruption	816 185	819 036	843 850	858 350	895 232	938 225					

[a] Annual Sales figures do not include unaccounted for gas.

[b] BU = Billing Unit = 100 000 kilojoules

[c] Difference between forecast made 1 to 5 years prior to the year indicated divided by actual or normalized sales and expressed as a percentage. A negative sign indicates that the forecast is too low.

MST184

10 September 1982

B.C.Hydro

TABLE 9-11

PROJECTION OF PROBABLE GAS SALES
VANCOUVER ISLAND
(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

PREPARED BY B.P. SESSIONS, VICTORIA

DATE 10 SEPTEMBER 1982

DESCRIPTION	FISCAL YEARS											
		PROJECTION										
	ACTUAL 1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
RESIDENTIAL												
ACCOUNTS AT YEAR END	2 970	2 940	2 910	2 882	2 858	2 838	2 822	2 822	2 822	2 822	2 822	2 822
AVERAGE ACCOUNTS FOR YEAR	3 062	2 955	2 925	2 896	2 870	2 848	2 830	2 822	2 822	2 822	2 822	2 822
ANNUAL USE PER ACCOUNT - BU	280	290	293	295	298	300	302	303	303	303	303	303
SALES - THOUSAND BU	859	857	857	854	854	854	854	854	854	854	854	854
COMMERCIAL - INDUSTRIAL												
ACCOUNTS AT YEAR END	1 174	1 170	1 166	1 162	1 158	1 158	1 158	1 158	1 158	1 158	1 158	1 158
AVERAGE ACCOUNTS FOR YEAR	1 180	1 172	1 168	1 164	1 160	1 158	1 158	1 158	1 158	1 158	1 158	1 158
ANNUAL USE PER ACCOUNT - BU	2 077	2 463	2 698	2 710	2 720	2 725	2 725	2 725	2 725	2 725	2 725	2 725
SALES - THOUSAND BU	2 451	2 887	3 152	3 155	3 155	3 155	3 155	3 155	3 155	3 155	3 155	3 155
B.C. HYDRO USE												
ACCOUNTS AT YEAR END	3	3	3	3	3	3	3	3	3	3	3	3
AVERAGE ACCOUNTS FOR YEAR	3	3	3	3	3	3	3	3	3	3	3	3
ANNUAL USE PER ACCOUNT - BU	1 614	1 610	1 610	1 610	1 610	1 610	1 610	1 610	1 610	1 610	1 610	1 610
SALES - THOUSAND BU	5	5	5	5	5	5	5	5	5	5	5	5
TOTAL SALES												
ACCOUNTS AT YEAR END	4 147	4 113	4 079	4 047	4 019	3 999	3 983	3 983	3 983	3 983	3 983	3 983
AVERAGE ACCOUNTS FOR YEAR	4 245	4 130	4 096	4 063	4 033	4 009	3 991	3 983	3 983	3 983	3 983	3 983
SALES - THOUSAND BU	3 315	3 749	4 014	4 014	4 014	4 014	4 014	4 014	4 014	4 014	4 014	4 014

BU - BILLING UNIT = 100, 000 KILOJOULES

TABLE 9-11

PART TEN

RAILWAY OPERATIONS

Page

10.1 Outlook 178

PART TEN

RAILWAY OPERATIONS

10.1 Outlook

The railway operations outlook is based on assumed improvements in North American economic conditions. Carload volume for the current fiscal year 1982/83 is estimated at 55 000 cars. The projected carload volume for 1983/84 is 66 000 cars. The increase in volume is based on an increased demand for forest products.

A return to normal traffic volumes is anticipated by 1984/85 and a modest annual growth of a little over 1% is projected for the eight years from 1985/86 to 1992/93 with carload volume in 1992/93 projected to be 81 000 cars. The modest growth is based predominantly on an increase in forest product traffic in the early years of the forecast period and increased foodstuffs, grocery products and appliances in the later years.

Factors which could affect projected volumes are:

(a) the speed of the economic recovery;

(b) energy and its impact on all forms of transportation;

(c) relocation of Carrall Yard rail customers;

(d) the changes in distribution of goods as a result of the new Annacis Island crossing and Marine Way;

(e) the V&LI and Roberts Bank agreements;

(f) land development and the relocation of industry;

(g) the impact of ALRT on long-term planning;

(h) the deregulation of United States rail freight rates.

APPENDIX A

ECONOMICS AND DEMOGRAPHICS

Page

A.1 Introduction 181

Table AA-1 B. C. Fertility Rates 182

Table AA-2 B. C. Mortality Rates 183

Table AA-3 B. C. Net In-Migration 184

Table AA-4 B. C. Headship Rates 185

Table AA-5 B. C. Distribution of Housing Type by Age Group 186

Table AA-6 B. C. Distribution of Occupied Household by Type of Dwelling 188

Table AA-7 B. C. Distribution of Incremental Occupied Households by Type of Dwelling 188

APPENDIX A

ECONOMICS AND DEMOGRAPHICS

A.1 Introduction

This appendix provides sources and details of the background of economic and demographic variables.

The economic variables are from the Long-Term Economic Outlook prepared in July, 1982 by the B. C. Hydro Corporate Economist. This document should be consulted for additional details on economic variables.

With respect to population and household details, the following tables provide data and additional analysis.

Table AA-1

BRITISH COLUMBIA
FERTILITY RATES[a]

Age Group	1976	1981	1991	2001
15-19	0.035	0.035	0.038	0.036
20-24	0.112	0.112	0.121	0.115
25-29	0.121	0.121	0.131	0.124
30-34	0.061	0.061	0.066	0.063
35-39	0.018	0.018	0.020	0.019
40-44	0.003	0.003	0.003	0.003
	1.75	1.75	1.90	1.80

[a] The fertility rate opposite each age group is the rate of child bearing for women in each year of the age groups specified. The sum of five times the individual rates is shown at the bottom of each column.

The increase in fertility rates to 1991 and the decrease thereafter results from discussions with B. C. Hydro's Corporate Economist and reflects changes in fertility during the "echo" effect of the baby boom. The future fertility rates are distributed by age group as in the historical 1976 distribution. This assumption requires further study since the mean and modal[1] age of fertility have declined and may continue to decline.

---

[1] modal: the most frequent value in a frequency distribution

Table AA-2

BRITISH COLUMBIA

MORTALITY RATES

(per 100 000 population)

	Male			Female		
Age	1967	1977	1987 to 2001	1967	1977	1987 to 2001
0	2 407	1 785	1 162	1 912	1 436	960
1-4	98	78	57	86	69	51
5-9	60	52	44	42	37	32
10-14	52	46	40	33	29	26
15-19	137	129	122	54	51	48
20-24	183	191	199	60	56	53
25-29	154	155	156	68	61	54
30-34	161	160	159	84	76	68
35-39	222	222	222	115	114	113
40-44	348	349	351	175	171	167
45-49	574	569	564	291	284	277
50-54	946	934	923	489	458	428
55-59	1 524	1 497	1 469	823	730	637
60-64	2 379	2 350	2 321	1 376	1 152	927
65-69	3 651	3 668	3 684	2 327	1 975	1 623
70-74	5 268	5 222	5 176	3 543	2 909	2 275
75-79	8 012	7 796	7 580	5 853	4 741	3 627
80-84	12 368	11 773	11 178	9 955	8 538	7 120
85+	21 220	21 140	21 059	19 011	18 049	17 087

Source:

Estimates for 1967 and 1987 mortality rates are from Statistics Canada Publication: Technical Report on Population Projections for Canada and the Provinces, 1972-2001. Values for 1977 are interpolated. Constant mortality rates are assumed after 1987.

Table AA-3

BRITISH COLUMBIA
NET IN-MIGRATION

Year	Net In-Migration[a] Per Year
1976 to 1981 (average)	39 000
1982	21 500
1983	21 500
1984	25 800
1985	29 600
1986	34 000
1991	41 000
2001	50 000

[a] These estimates are provided by B. C. Hydro's Corporate Economist. They include the sum of international and interprovincial net in-migration. Values in the early 1980's are below recent historical levels due to poor employment prospects. Longer term estimates increase, but remain within historical ratios of net in-migration to population.

Table AA-4

BRITISH COLUMBIA
HEADSHIP RATES

	Age Group					
Year	15-24	25-34	35-44	45-54	55-64	65+
Actual						
1966	.105	.435	.484	.511	.556	.585
1971	.125	.456	.516	.516	.554	.595
1976	.155	.479	.533	.537	.559	.610
1981[a]	.187	.508	.557	.565	.567	.633
Forecast						
2001	.265	.582	.593	.597	.604	.647

[a] Estimated

Table AA-5

BRITISH COLUMBIA

DISTRIBUTION OF HOUSING TYPE BY AGE GROUP

(Percent)

Age Group	Year	Single	Duplex	Attached		Apartment	Mobile	Total
		percent						
15-24	1966	37.7	-	8.0		51.0	3.3	100.0
	1971	33.4	-	7.3		53.9	5.4	100.0
	1976	29.9	6.7	8.4		47.0	8.0	100.0
				Double	Row			
	1981	28		11	4	48	9	100
	2000	17		9	16	53	5	100
25-34	1966	67.9	-	6.1		24.0	2.0	100.0
	1971	59.2	-	7.3		28.8	4.7	100.0
	1976	56.5	4.3	8.1		24.6	6.5	100.0
	1981	56		9	4	24	7	100
	2000	43		7	15	30	5	100
35-44	1966	81.0	-	3.9		13.9	1.2	100.0
	1971	78.2	-	4.9		14.3	2.6	100.0
	1976	73.5	2.8	6.2		13.0	4.5	100.0
	1981	73		7	4	12	4	100
	2000	57		7	18	15	3	100
45-54	1966	81.0	-	3.1		14.7	1.2	100.0
	1971	78.2	-	3.7		16.0	2.1	100.0
	1976	74.2	2.4	4.4		14.9	4.1	100.0
	1981	73		5	2	15	5	100
	2000	63		5	11	18	3	100
55-64	1966	77.3	-	3.3		18.5	0.9	100.0
	1971	74.2	-	3.0		20.6	2.2	100.0
	1976	68.7	2.3	3.4		20.5	5.1	100.0
	1981	68		5	2	20	5	100
	2000	60		5	9	21	5	100
65+	1966	69.6	-	3.4		26.5	0.5	100.0
	1971	64.6	-	3.4		30.4	1.6	100.0
	1976	57.5	2.1	3.4		33.1	3.9	100.0
	1981	56		4	2	34	4	100
	2000	50		4	4	39	3	100

Footnotes - next page

Footnotes for Table AA-5:

1. Historical data is from Statistics Canada Census and is classified as shown, with definitions as follows:

   1976

   - Single; only one dwelling, separated by open space from all other structures.
   - Attached; single units such as double house (separated by vertical wall), row house (three or more dwellings sharing vertical walls), and house attached to non-residential building.
   - Apartment; triplex, quadruplex or apartment building where dwellings separated vertically and/or horizontally.
   - Duplex; one of two dwellings separated horizontally (up and down).
   - Mobile; must be used as a permanent residence.

   1966, 1971

   - Single; as above.
   - Attached; as above plus duplex.
   - Apartment; as above.
   - Mobile; as above.

2. Historical data on housing starts by type is combined with the historical data on Table AA-4 to derive row and double (two dwellings separately horizontally or vertically) distribution.

Table AA-6

BRITISH COLUMBIA

DISTRIBUTION OF OCCUPIED HOUSEHOLD BY TYPE OF DWELLING

Year	Single/Double[a]		Row		Apartment		Mobile	
	(000's)	%	(000's)	%	(000's)	%	(000's)	%
1981	682	68	31	3	238	24	54	5
1986	754	66	62	5	275	24	58	5
1991	826	63	103	8	323	25	61	4
1996	894	60	150	10	379	26	63	4
2001	956	57	208	13	443	27	65	4

[a] Includes single detached and double unit dwellings.

Table AA-7

BRITISH COLUMBIA

DISTRIBUTION OF INCREMENTAL OCCUPIED HOUSEHOLDS BY TYPE OF DWELLING

Year	Single/Double[a]		Row		Apartment		Mobile	
	(000's)	%	(000's)	%	(000's)	%	(000's)	%
1981-1986	72	50	31	21	37	26	4	3
1986-1991	72	44	41	25	48	29	3	2
1991-1996	68	40	47	27	56	32	2	1
1996-2001	62	34	58	31	64	34	2	1

[a] Includes single detached and double unit dwellings.

APPENDIX B

ENERGY PRICES

Page

B.1 Electricity 190

Table AB-1 Comparison of Financial Parameters 192
Table AB-2 Generation Expansion Plan - 20 Years 193
Table AB-3 Unit Revenue Requirements 193
Figure AB-1 B. C. Hydro Unit Revenue Requirements 194

B.2 Crude Oil and Natural Gas Prices 195

Table AB-4 Canadian Crude Oil and Natural Gas Prices 196
Table AB-5 B. C. Crude Oil and Product Prices 200
Table AB-6 B. C. Natural Gas Prices 203

APPENDIX B

ENERGY PRICES

B.1 Electricity

This part of the Appendix details the basis of the electricity price forecast presented in Part Two. Unit revenues in terms of 1981 dollars are developed for three scenarios:

CASE 1 - The expansion plan and financial parameters in the Corporate Plan issued 15 May 1982 for the period 1 April 1982 to 31 March 1992.

CASE 2 - A scenario similar to Case 1 but extended to 20 years and based on the interest, inflation and exchange rates presented in 1982 Economic Outlook.

CASE 3 - A scenario the same as Case 2 but with load growth 0.5 percentage points lower.

Cases 1 and 2 are based on the May 1982 Interim Load Forecast with projected growth of 4.8%/year from 1980/81 to 1991/92 and 3.0% from 1991/92 to 2001/02. Case 3, as indicated, is based on load growth 0.5 percentage point lower than in the Interim Forecast.

Table AB-1 presents the financial parameters used in each of the analyses, Table AB-2 the generation sequences and Table AB-3 and Figure AB-1 the resulting unit revenue requirements in 1981 dollars.

The selection of the forecast of unit revenues for use in this study is demonstrated in Figure AB-1. The upper half of the Figure shows the unit revenue requirements resulting from each of the three analyses. In the lower half of the Figure a trend line is drawn through the band resulting from these analyses. For the purpose of this study unit revenues are assumed to follow this trend line.

Table AB-1

COMPARISON OF FINANCIAL PARAMETERS
PREPARED IN NOVEMBER 1981 AND USED IN MAY 1982 CORPORATE PLAN

	Price Indexes					
		Cost System			Fixed Assest	
Year Ending 31 March	GNP Deflator	Labour %	Fuels %	Other %	Thermal (Hat Creek) %	Other %
1983	11.0	13.0	24.0	11.5	12.0	11.5
1984	10.0	11.5	17.5	11.0	11.0	10.5
1985	9.0	10.5	10.5	9.5	10.0	9.5
1986	9.0	9.5	11.5	9.0	10.0	9.0
1987	9.0	9.5	11.5	9.0	10.0	9.0
1988	8.5	9.0	11.0	9.0	10.0	9.0
1989	8.5	9.0	10.0	8.5	9.5	9.0
1990	8.0	9.0	10.0	8.5	9.5	9.0
1991	8.0	9.0	10.0	8.0	9.5	9.0
1992	8.0	8.5	10.0	8.0	9.5	9.0

Year Ending 31 March	Interest Rate %	Exchange ($US/$Can.)
1983	15.5	.84
1984	14.0	.85
1985	12.5	.86
1986	12.0	.87
1987	12.0	.88
1988	11.5	.89
1989	11.5	.90
1990	11.5	.90
1991	11.5	.90
1992	11.5	.90

PREPARED IN JULY 1982 AND USED IN 1982 ECONOMIC OUTLOOK

Year Ending March 31	Cost Index & Deflator	Interest Rate	Exchange Rate
1983	9.5	17.5	79.0
1984	8.0	17.0	80.0
1985	7.2	15.5	81.0
1986	7.5	13.5	82.0
1987	7.5	13.0	83.0
88-92	7.0	12.0	85.0
93-02	7.0	12.0	88.0

Table AB-2

GENERATION EXPANSION PLAN
20 YEARS

Plants	Capacity	Date of First Power		
		Case 1	Case 2	Case 3
Revelstoke	1800 MW (dependable) Ultimate Capacity	1984	1984	1984
Peace Site C	900 MW	1989	1989	1990
Keenleyside[a]	144 MW (nominal)	1988	1988	1989
Hat Creek	700 MW (net)	1990	1992	1994
Murphy Creek[a]	280 MW (nominal)	1991	1990	1992

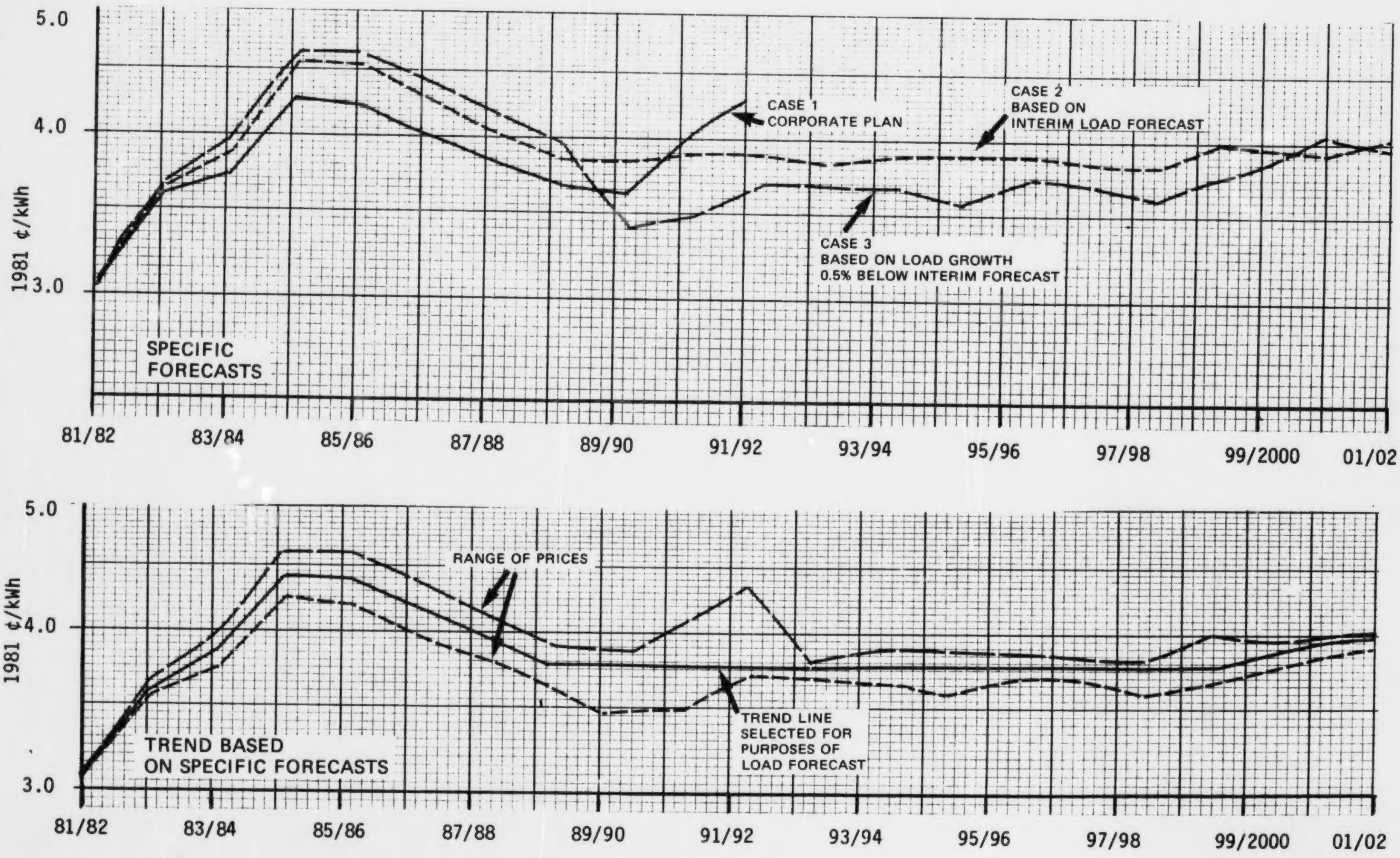
[a] Installed Capacities are under review.

Table AB-3

UNIT REVENUE REQUIREMENTS
(¢/kW.h - 1981 Dollars)

Year	Case 1 Corporate Plan	Case 2 Revised Finan. Parameters	Case 3 Lower Load Growth	Trend Line
1982/83	3.59	3.65	3.67	3.64
1983/84	3.73	3.86	3.90	3.82
1984/85	4.26	4.55	4.61	4.44
1985/86	4.20	4.50	4.60	4.40
1986/87	3.97	4.26	4.38	4.18
1987/88	3.83	4.04	4.18	3.98
1988/89	3.66	3.86	3.95	3.80
1989/90	3.64	3.83	3.44	3.80
1990/91	4.08	3.91	3.51	3.80
1991/92	4.35	3.89	3.72	3.80
1992/93		3.83	3.70	3.80
1993/94		3.91	3.68	3.80
1994/95		3.89	3.62	3.80
1995/96		3.90	3.75	3.80
1996/97		3.86	3.72	3.80
1997/98		3.85	3.64	3.80
1998/99		4.03	3.71	3.80
1999/00		3.97	3.82	3.90
2000/01		3.93	4.06	4.00
2001/02		4.05	3.96	4.00

Figure AB-1
PROJECTED B. C. HYDRO UNIT REVENUE REQUIREMENTS



B.2 Crude Oil and Natural Gas Prices

B.2.1 Canadian Crude Oil Prices

Table AB-4 quantifies the components of the Canadian crude oil pricing model developed by B. C. Hydro. The relationship among the components is illustrated in the footnotes to Table AB-4.

Several sources are used for the crude oil pricing model. Canadian crude oil production is generally based on the National Energy Board's (NEB) Energy Report published in 1981; crude oil demand initially follows the trend shown in the National Energy Program (NEP) Update 1982 and then remains stable through the late 1980's and rises slowly through the 1990's; and relationships among pricing components are as indicated in the Federal/Alberta Energy Pricing Agreement (1981) and partially modified by the NEP Update 1982.

The international crude oil price is a key factor in determining the medium and longer term Canadian crude oil price. On the basis of the actual price of international crude oil in Montreal during the first portion of 1982, an annual average price of U. S. $34.00 per barrel in 1982 is estimated. Subsequently, increases in the international crude oil price in U. S. dollars are at the U. S. rate of inflation in 1983, 1% above U. S. inflation from 1984 to 1986 and 2% above thereafter.

Combining the international FOB crude oil price with the ocean and pipeline tariff to Montreal, and adjusting for the exchange rate results in an international crude oil price in Montreal stated in Canadian dollars.

Table AB-4
(page 1 of 2)

CANADIAN CRUDE OIL AND NATURAL GAS PRICES

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
OLD OIL-TOTL MMB/D	1.17	1.06	0.95	0.86	0.76	0.67	0.60	0.53	0.48	0.43
PRE 74	1.03	0.92	0.81	0.72	0.63	0.55				
74-80	0.14	0.14	0.14	0.14	0.12	0.12				
NEW OIL-CONV	0.02	0.05	0.10	0.14	0.18	0.25	0.29	0.33	0.36	0.38
PENTANES PLUS	0.10	0.10	0.11	0.11	0.10	0.10	0.09	0.08	0.07	0.06
FRONT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.09
SYNTH	0.11	0.12	0.15	0.17	0.17	0.17	0.17	0.17	0.17	0.17
TOTAL	0.23	0.27	0.36	0.42	0.46	0.52	0.55	0.60	0.65	0.71
TOTAL	1.40	1.33	1.31	1.28	1.22	1.19	1.15	1.13	1.13	1.14
DMD/LVY BASE	1.69	1.61	1.57	1.53	1.52	1.51	1.51	1.51	1.51	1.52
NET IMP/EXP	-0.28	-0.28	-0.26	-0.26	-0.31	-0.32	-0.36	-0.38	-0.38	-0.39
INTL FOB US$	33.75	32.60	34.72	37.50	40.68	43.94	47.67	51.73	56.12	60.89
TARIFF-MONT	1.75	1.70	1.78	1.87	1.97	2.07	2.17	2.28	2.39	2.51
INTL @ MONT US	35.50	34.30	36.50	39.37	42.65	46.00	49.84	54.00	58.51	63.40
EXCHNGE RATE	0.83	0.79	0.80	0.81	0.82	0.83	0.84	0.84	0.85	0.86
INTL IN MONT C$/B	42.77	43.42	45.63	48.61	52.01	55.43	59.34	64.29	68.84	73.73
WHEAD TO TOR	1.23	1.40	1.48	1.56	1.62	1.68	1.77	1.88	1.98	2.09
WHEAD TO MON	1.43	1.60	1.68	1.76	1.82	1.88	1.99	2.10	2.22	2.34
OLD P74 BASE	18.73	24.62	31.75	34.69	37.19	39.69	42.52	46.12	49.41	52.95
WTH QLTY ADJ	19.57	25.73	33.18	36.26	38.86	41.48	44.43	48.19	51.62	55.16
OLD 74-80 BASE	18.73	27.23	32.54	34.69	37.19	39.69	42.52	46.12	49.41	52.95
WTH QLTY ADJ	19.57	28.46	34.01	36.26	38.86	41.48	44.43	48.19	51.62	55.16
NORP- BASE	41.34	41.82	43.95	46.85	50.19	53.55	57.35	62.19	66.62	71.38
WTH QLTY ADJ	44.65	45.16	47.47	50.59	54.19	57.55	61.35	66.19	70.62	75.38
CDN LEVY	0.77	1.15								
PCC	7.00	6.30	5.09	5.70	6.90	8.06	9.27	10.64	12.00	13.54
BLENDED MON C$/B	28.77	34.78	39.95	43.72	47.58	51.42	55.69	60.93	65.84	71.04
BLENDED TOR	28.57	34.58	39.75	43.52	47.38	51.22	55.48	60.71	65.60	70.79
BLENDED WHEAD	27.34	33.18	38.27	41.96	45.76	49.54	53.70	58.84	63.62	68.70
PAR TOR BLND $/GJ	4.67	5.65	6.49	7.11	7.74	8.37	9.07	9.92	10.72	11.57
65/70/75% PAR @TD	3.03	3.67	4.22	4.62	5.03	5.44	6.35	6.94	7.50	8.10
ABP IN TOR	2.44	2.94	3.62	4.34	5.03	5.56	6.17	6.79	7.42	8.10
TRAN AB. TO TOR	0.67	0.89	1.10	1.34	1.56	1.62	1.76	1.91	2.07	2.25
ABP	1.77	2.05	2.52	3.00	3.47	3.94	4.41	4.88	5.35	5.86
CDN LEVY	0.09	0.14								
NGGLT	0.35	0.63	0.60	0.28	0.00	0.00	0.18	0.16	0.08	0.00

Table AB-4
(page 2 of 2)
CANADIAN CRUDE OIL AND NATURAL GAS PRICES

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
OLD OIL-TOTL MMB/D	0.38	0.35	0.32	0.29	0.26	0.24	0.22	0.20	0.18	0.16
NEW OIL-CONV	0.40	0.42	0.43	0.44	0.45	0.45	0.45	0.45	0.45	0.44
PENTANES PLUS	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
FRONT	0.13	0.22	0.31	0.41	0.50	0.60	0.69	0.72	0.75	0.79
SYNTH	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
TOTAL	0.76	0.87	0.97	1.08	1.18	1.28	1.37	1.40	1.43	1.46
TOTAL	1.14	1.22	1.29	1.36	1.44	1.52	1.59	1.60	1.61	1.62
DMD/LVY BASE	1.54	1.55	1.56	1.57	1.59	1.60	1.61	1.62	1.64	1.65
NET IMP/EXP	-0.39	-0.33	-0.27	-0.21	-0.15	-0.08	-0.02	-0.02	-0.03	-0.03
INTL FOB US$	66.07	71.68	77.78	84.39	91.56	99.34	107.79	116.95	126.89	137.68
TARIFF-MONT	2.64	2.77	2.91	3.05	3.21	3.37	3.53	3.71	3.90	4.09
INTL @ MONT US	68.71	74.45	80.68	87.44	94.77	102.71	111.32	120.66	130.79	141.77
EXCHNGE RATE	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
INTL IN MONT C$/B	78.97	84.61	91.69	99.37	107.69	116.72	126.50	137.11	148.62	161.10
WHEAD TO TOR	2.21	2.34	2.47	2.61	2.76	2.91	3.08	3.25	3.43	3.63
WHEAD TO MON	2.47	2.61	2.76	2.92	3.08	3.26	3.44	3.64	3.84	4.06
OLD P74 BASE	56.75	60.84	66.00	71.61	77.68	84.28	91.44	99.20	107.63	116.77
WTH QLTY ADJ	58.96	63.05	68.21	73.82	79.89	86.49	93.65	101.41	109.84	118.98
OLD-74-80-BASE	56.75	60.84	66.00	71.61	77.68	84.28	91.44	99.20	107.63	116.77
WTH QLTY ADJ	58.96	63.05	68.21	73.82	79.89	86.49	93.65	101.41	109.84	118.98
NORP- BASE	76.50	81.99	88.93	96.45	104.61	113.46	123.06	133.48	144.78	157.04
WTH QLTY ADJ	80.50	85.99	92.93	100.45	108.61	117.46	127.06	137.48	148.78	161.04
PCC	15.11	16.92	19.01	21.27	23.65	26.17	28.88	31.65	34.62	37.82
BLENDED MON C$/B	76.55	82.59	89.99	98.00	106.63	115.92	125.97	136.70	148.30	160.85
BLENDED TOR	76.29	82.31	89.69	97.69	106.30	115.57	125.60	136.31	147.89	160.42
BLENDED WHEAD	74.08	79.97	87.22	95.08	103.54	112.66	122.53	133.06	144.46	156.79
PAR TOR BLND $/GJ	12.47	13.45	14.66	15.96	17.37	18.88	20.52	22.27	24.16	26.21
65/70/75% PAR BTU	8.73	10.09	10.99	11.97	13.03	14.16	15.39	16.71	18.12	19.66
ABP IN TOR	8.85	9.67	10.56	11.53	12.60	13.76	15.03	16.42	17.94	19.59
TRAN AB. TO TOR	2.44	2.64	2.87	3.11	3.38	3.66	3.97	4.31	4.68	5.08
ABP	6.41	7.02	7.69	8.42	9.22	10.10	11.06	12.11	13.26	14.52
NGGLT	0.00	0.42	0.43	0.44	0.43	0.40	0.36	0.28	0.19	0.07

Footnotes to Table AB-4

Line		
1	OLD OIL-TOTL MMB/D	Generally follows estimates in Federal/Alberta Agreement, NEP Update 1982 and NEB.
2	PRE 74	Production from old oil discovered before 1974. Estimate from Federal/Alberta Agreement.
3	74-80	Production from old oil discovered between 1974 and 1980.
4	NEW OIL-CONV	New conventional crude oil. Relies on NEB estimate.
5	PENTANES PLUS	Classified as new oil in Federal/Alberta Agreement. Relies on NEB estimate.
6	FRONT	By assumption.
7	SYNTH	Assumes no new mega-projects in oil sand development.
8	TOTAL	Lines (4+5+6+7).
9	TOTAL	Lines (1+8).
10	DMD/LVY BASE	Generally follows estimates in NEP Update 1982 in early 1980's and then levels before rising in 1990's.
11	NET IMP/EXP	Lines (9-10).
12	INTL FOB US$	International crude oil price at producer country in U. S. dollars per barrel. Values for 1981 and 1982 are estimated actuals. 1983 value increases by central case U. S. inflation; 1984 to 1986 by U. S. inflation plus 1% and 1987 to 2000 by U. S. inflation plus 2%.
13	TARIFF-MONT	Includes ocean freight, losses and pipeline tariff. Increases at 5% per year after 1982.
14	INTL @ MONT US	Lines (12+13).
15	EXCHNGE RATE	Corporate Economist Economic Outlook.
16	INTL IN MONT C$/B	Lines (14/15).
17	WHEAD TO TOR	Sum of gathering changes, and pipeline tariffs. As per NEP Update 1982 to 1986, and 5.65% per year increase thereafter.
18	WHEAD TO MON	Line 17 extended to Montreal. Same basis for projection.
19	OLD P74 BASE	Minimum of scheduled increases in price as per Federal/Alberta Agreement or 75% of world crude oil less transportation charges.
20	WTH QLTY ADJ	Quality adjustment as per Federal/Alberta Agreement.
21	OLD 74-80 BASE	75% of world crude oil price less transportation charges.
22	WTH QLTY ADJ	Quality adjustment as per Federal/Alberta Agreement.
23	NORP-BASE	International crude oil price in Montreal less transportation charges.
24	WTH QLTY ADJ	Quality adjustment as per Federal/Alberta Agreement.
25	CDN LEVY	Canadianization Levy. Amount and duration as per NEP Update 1982.
26	PCC	Petroleum Compensation Change to cover the difference in cost between new or imported crude oil and old crude oil.
27	BLENDED MON C$/B	Lines (18+20+25+26).
28	BLENDED TOR	Lines (17+20+25+26).
29	BLENDED WHEAD	Lines (20+25+26).
30	PAR TOR BLND $/GJ	Natural gas value at 100% heat parity to the Toronto blended crude oil price. Line (28)/6.12 PJ/B.
31	65/70/75% PAR @TO	Line (30) × 65% to 1986; Line (30) × 70% to 1991 and Line (30) × 75% to 2000.
32	ABP IN TOR	Lines (33+34).
33	TRAN AB. TO TOR	As per NEP Update to 1986; increased at Canadian inflation plus 1% thereafter.
34	ABP	As per Federal/Alberta Agreement to 1986. Maximum of $0.47/GJ per year or increase with Canadian inflation rate plus 2%.
35	CDN LEVY	Canadianization Levy. Amount and duration as per NEP Update.
36	NGGLT	Lines (31-32-35).

Once the Montreal price is established, the arrangements of the Federal/Alberta Agreement and the NEP Update 1982 are applied to derive old, new and blended crude oil prices. The Vancouver blended crude oil price is derived by adjusting the Toronto blended price for transportation charges. With respect to real prices the blended price of crude oil in Toronto increases steadily in real terms, but the international price does not attain real values equal to the high levels reached in 1981 until the end of the 1980's.

The Vancouver blended crude oil price is the sum of the wellhead blended crude oil price, an Alberta field gathering charge ($0.31 per barrel in 1981, growing at 6% per year) and a pipeline tariff from Edmonton to Vancouver ($0.60 per barrel in 1981, growing at 4% per year). See Table AB-5.

B.2.2 Natural Gas Prices

The price of natural gas sold to British Columbia distribution utilities has several components. One is the Natural Gas and Gas Liquids Tax (NGGLT) which is derived from the difference between the heat parity value of natural gas at Toronto, based upon a heat parity ratio with the Toronto blended crude oil price, and the sum of the Alberta border price plus transportation costs to Toronto. The ratio is set at 65% to 1986 in accordance with the Federal/Alberta Agreement, 70% from 1987 to 1991 and 75% thereafter. The increasing ratio occurs as the "off-oil" program of the NEP reaches saturation and natural gas prices move towards historic ratios with crude oil prices.

Within British Columbia there are several components to the natural gas price paid by provincial distribution utilities. There is also some uncertainty with respect to the role each of these components will have in the future.

Table AB-5

B.C. CRUDE OIL AND PRODUCT PRICES

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
BLENDED WHEAD	27.34	33.18	38.37	42.73	47.63	52.48	56.89	62.33	67.35	72.74
ALB FLD GATHER CHARGE	0.31	0.33	0.35	0.37	0.39	0.41	0.44	0.47	0.49	0.52
TARIFF EDM TO VAN	0.60	0.62	0.65	0.67	0.70	0.73	0.76	0.79	0.82	0.85
BLNDED VAN CRUDE PRICE	28.25	34.13	39.36	43.78	48.72	53.62	58.09	63.59	68.67	74.12
RESIDENTIAL LFO $/L	0.26	0.30	0.35	0.38	0.42	0.46	0.50	0.54	0.59	0.63
LFO INDEX	0.84	1.00	1.14	1.26	1.39	1.52	1.65	1.80	1.94	2.09
COMM. LFO $/L	0.25	0.30	0.34	0.37	0.41	0.45	0.49	0.54	0.58	0.62
KEROSENE $/L	0.00	0.32	0.36	0.40	0.44	0.49	0.53	0.57	0.62	0.67
GASOLINE $/L	0.38	0.44	0.49	0.54	0.59	0.64	0.69	0.75	0.81	0.87
DIESEL FUEL $/L	0.00	0.39	0.45	0.50	0.55	0.60	0.65	0.71	0.77	0.83
LPG- PROPANE $/GJ	1.21	4.89	5.55	6.31	7.05	8.06	9.68	10.85	11.98	13.22
LPG- BUTANE $/GJ	1.33	5.37	6.11	6.94	7.75	8.87	10.65	11.94	13.18	14.54
HFO-SMALL IND. $/ L.	0.00	0.24	0.26	0.28	0.29	0.30	0.33	0.36	0.39	0.42
HFO-LARGE IND. $/ L.	0.00	0.19	0.21	0.22	0.23	0.24	0.24	0.26	0.28	0.30

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
BLENDED WHEAD	78.45	84.70	92.38	100.71	109.67	119.33	129.80	140.98	153.07	166.16
ALB FLD GATHER CHARGE	0.56	0.59	0.62	0.66	0.70	0.74	0.79	0.83	0.88	0.94
TARIFF EDM TO VAN	0.89	0.92	0.96	1.00	1.04	1.08	1.12	1.17	1.22	1.26
BLNDED VAN CRUDE PRICE	79.89	86.21	93.96	102.37	111.41	121.16	131.71	142.98	155.17	168.36
RESIDENTIAL LFO $/L	0.68	0.74	0.80	0.87	0.94	1.02	1.11	1.20	1.30	1.41
LFO INDEX	2.25	2.43	2.64	2.87	3.11	3.38	3.66	3.97	4.30	4.65
COMM. LFO $/L	0.67	0.72	0.79	0.86	0.93	1.01	1.10	1.19	1.29	1.40
KEROSENE $/L	0.72	0.77	0.84	0.91	0.99	1.08	1.17	1.27	1.37	1.48
GASOLINE $/L	0.94	1.01	1.10	1.19	1.28	1.39	1.50	1.62	1.75	1.90
DIESEL FUEL $/L	0.89	0.96	1.04	1.13	1.23	1.33	1.45	1.57	1.70	1.84
LPG- PROPANE $/GJ	14.22	16.51	17.97	19.56	21.25	23.08	25.05	27.15	29.42	31.87
LPG- BUTANE $/GJ	15.64	18.16	19.77	21.51	23.38	25.39	27.56	29.87	32.36	35.06
HFO-SMALL IND. $/ L.	0.45	0.49	0.53	0.58	0.63	0.69	0.75	0.81	0.88	0.95
HFO-LARGE IND. $/ L.	0.33	0.35	0.38	0.42	0.46	0.50	0.54	0.58	0.63	0.69

Footnotes to Table AB-5

Line		
1	BLENDED WHEAD	From line 29 of "Canadian Crude Oil and Natural Gas Prices".
2	ALB FLD GATHER CHARGE	Increased 6% per year from 1981 base.
3	TARIFF EDM TO VAN	Increased 4% per year from 1981 base.
4	BLNDED VAN CRUDE PRICE	Lines (1+2+3).
5	RESIDENTIAL LFO $/ℓ	Line 4 adjusted for refinery losses (7.5%) and refining and distribution margin (7.25 1982¢/ℓ) Margin increased at Canadian inflation rate.
6	LFO INDEX	Index of Line 5.
7	COMM. LFO $/ℓ	Line 5 reduced by discount (2.5 1982 ¢/ℓ) and increased by 6% provincial sales tax.
8	KEROSENE $/ℓ	Input 1982 price, increase by index on Line 6.
9	GASOLINE $/ℓ	Line 4 adjusted for dealer margin, provincial tax, excise tax, sales tax, refinery margin. All adjustments increased from 1982 at Canadian inflation rate.
10	DIESEL FUEL $/ℓ	Input 1982 price, increase by index of Line 6.
11	LPG-PROPANE $/GJ	Alberta border natural gas price times a ratio plus transportation costs. Ratio is 1.25 in 1982, increased linearly to 1.7 in 1990 and held constant thereafter. Transportation costs from Alberta are $1.38/GJ in 1982, increased at Canadian inflation rate.
12	LPG-BUTANE $/GJ	Line 11 times 1.1.
13	HFO-SMALL IND. $/ℓ	HFO price is a ratio to Line 4 values. Ratio of 1.1 in 1982 declines to 0.9 in 1990 and thereafter.
14	HFO-LARGE IND. $/ℓ	Ratio to Line 4 of 0.9 in 1982 declines 0.65 in 1990 and thereafter.

Table AB-6 quantifies the British Columbia natural gas pricing model used by B. C. Hydro and the footnotes to Table AB-6 describe the relationships among variables.

The netback to the producer is the starting point of British Columbia natural gas pricing. The BCUC has recommended, and the Government has approved in principle, that producer netbacks should be raised to ensure the long term development of the province's natural gas resource potential. The producer netbacks vary for old and new gas, with a blended netback being derived by the share of old and new gas in total gas production.

The pricing natural gas model follows the BCUC proposal with the domestic field price calculated to provide the producer with enough revenue to provide for operating costs, taxes and a satisfactory netback. The domestic field price is combined with the Westcoast Transmission (WTCL) transportation cost of service to estimate a wholesale price. Based on discussions with WTCL, the unit cost of service for transportation is increased at the Canadian rate of inflation.

Table AB-6

B. C. NATURAL GAS PRICES

($/GJ)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
PROD. NETBACK OLD	0.20	0.20	0.23	0.25	0.28	0.31	0.34	0.37	0.41	0.44
PROD. NETBACK NEW	0.50	0.50	0.56	0.62	0.68	0.75	0.83	0.90	0.99	1.08
PROD. NETBACK BLND	0.35	0.36	0.41	0.46	0.51	0.57	0.64	0.71	0.79	0.88
PROD. OP COSTS	0.15	0.17	0.18	0.20	0.22	0.24	0.26	0.29	0.32	0.35
DOMESTIC FIELD PRICE	0.95	0.98	1.12	1.26	1.40	1.56	1.74	1.92	2.13	2.37
WCTL C O S	0.93	1.03	1.12	1.21	1.31	1.41	1.52	1.63	1.75	1.88
BCH WHOL PRICE	1.97	2.15	2.24	2.46	2.70	2.97	3.25	3.55	3.89	4.25
CDN LEVY	0.09	0.14								
NGGLT	0.35	0.63	0.60	0.28	0.00	0.00	0.18	0.16	0.08	0.00
BCH WHOL PRICE+NGGLT	2.32	2.78	2.84	2.75	2.71	2.97	3.43	3.71	3.97	4.25
BCH COST OF SERVICE	1.77	1.10	1.18	1.33	1.68	2.00	2.13	2.17	2.23	2.31
AVERAGE BCH SELLING PRICE	2.32	3.88	4.02	4.08	4.39	4.97	5.56	5.88	6.20	6.56

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
PROD. NETBACK OLD	0.49	0.53	0.58	0.64	0.70	0.77	0.84	0.92	1.01	1.10
PROD. NETBACK NEW	1.19	1.30	1.42	1.56	1.71	1.87	2.04	2.24	2.45	2.68
PROD. NETBACK BLND	0.98	1.08	1.20	1.34	1.48	1.65	1.83	2.03	2.25	2.49
PROD. OP COSTS	0.38	0.42	0.46	0.50	0.55	0.60	0.66	0.72	0.79	0.86
DOMESTIC FIELD PRICE	2.62	2.91	3.22	3.57	3.96	4.38	4.85	5.37	5.95	6.59
WCTL C O S	2.02	2.18	2.34	2.52	2.70	2.91	3.12	3.36	3.61	3.88
BCH WHOL PRICE	4.65	5.08	5.56	6.09	6.66	7.29	7.98	8.73	9.56	10.47
NGGLT	0.00	0.42	0.43	0.44	0.43	0.40	0.36	0.28	0.19	0.07
BCH WHOL PRICE+NGGLT	4.65	5.50	5.99	6.52	7.09	7.69	8.34	9.02	9.75	10.54
BCH COST OF SERVICE	2.34	2.56	2.74	2.93	3.14	3.36	3.59	3.84	4.12	4.40
AVERAGE BCH SELLING PRICE	6.99	8.06	8.73	9.45	10.23	11.05	11.93	12.86	13.87	14.94

Footnotes to Table AB-6

Line		($/GJ)
1	PROD. NETBACK OLD	Values for 1981 to 1983 are input. Thereafter, increase at Canadian inflation rate plus 2%.
2	PROD. NETBACK NEW	Same procedure as Line 1.
3	PROD. NETBACK BLND	Start with 50% old in 1981 and calculate weighted average with old gas share declining at two percentages points per year.
4	PROD. OP COSTS	Value for 1981 is input, increase at Canadian inflation rate plus 2% thereafter.
5	DOMESTIC FIELD PRICE	(Line 3-0.4356 × Line 4)/0.4356. Where 0.4356 is (1-tax rate).
6	WCTL C O S	Value for 1981 is input, increase at Canadian inflation rate thereafter.
7	BCH WHOL PRICE	Lines (5+6).
8	CDN LEVY	Line 35 of "Canadian Crude Oil and Natural Gas Prices".
9	NGGLT	Line 36 of "Canadian Crude Oil and Natural Gas Prices".
10	BCH WHO PRICE+NGGLT	Lines (7+8+9).
11	BCH COST OF SERVICE	From B. C. Hydro corporate model.
12	AVERAGE BCH SELLING PRICE	Lines (10-11).

APPENDIX C

LOAD GROWTH, ENERGY PRICES AND INCOME

Page

C.1 Introduction 206

C.2 Residential 208

Figure AC-1 Comparison of Electricity Price, Income and Residential Use Per Household 210

Table AC-1 Effect of Price on Residential Electric Use 212

Table AC-2 Estimated Effects Constant Real Electricity Prices on Residential Requirements 216

C.3 General 214

Figure AC-2 Comparison of Electricity Price and General Electricity Sales Per $GDP 217

C.4 Bulk and Industiral Self-Generation 218

Table AC-3 Bulk and Industrial Self-Generation 219

Figure AC-3 Comparison of Industrial Electricity use per $GDP and Electricity, Natural Gas and Canadian Crude Oil Prices 220

C.5 Comparison of Results - B. C. Hydro with DataMetrics and Nera 221

Table AC-4 Comparison of B. C. Hydro's and DataMetrics' Forecast of Electric Requirements 223

Table AC-5 Comparison of B. C. Hydro, DataMetrics and Nera Estimates of Price Elasticity of Electricity Demand 225

APPENDIX C
LOAD GROWTH, ENERGY PRICES AND INCOME

C.1 Introduction

The reviews[1] of B. C. Hydro's load forecasting techniques prepared in the second half of 1981 resulted in recommendations that greater emphasis be placed on relationships between growth in the use of electricity and prices, population, income and other economic variables. These recommendations were, however, that this greater emphasis be incorporated within the "top down/end use" framework employed by B. C. Hydro rather than a switch to econometric techniques as the primary basis for forecasting electric load growth.

In keeping with these recommendations B. C. Hydro has increased the analysis of the likely trends in the prices of electricity and other energy forms; the impact of these price changes on electricity use; and the linkages between growth in population and economic variables and growth in electric energy use. These analyses are presented in Parts One through Five and in Part Eight of this report.

As supplementary exercises to the preparation of the load forecast as outlined in this report, B. C. Hydro has retained NERA to estimate price elasticities and DataMetrics Limited to prepare a forecast of total energy use in the province. Both the elasticities estimated by NERA and the forecast prepared by DataMetrics are based on an econometric approach to forecasting.

[1] These were a "Load Forecast Critique" prepared by B. C. Hydro and "An Examination of B. C. Hydro's Load Forecasting Strategy" prepared by Monenco Consultants Pacific Ltd.

In the econometric approach to forecasting electricity requirements, the relationships between electricity use, energy prices and income are normally explained in terms of elasticities. An elasticity measures the responsiveness of the demand for electricity (the dependent variable) to a change in an independent factor influencing that demand. The formula is as follows:

E = % change dependent variable ÷ % change independent variable

- Own price elasticity is the responsiveness of the demand for electricity to changes in its own price. This is expected to be negative, i.e. an increase in the price results in a decrease in the demand: a co-efficient of -0.1 means that for every 1% increase in price, demand decreases by 1/10 of 1%.

- Cross price elasticity is the responsiveness of the demand for electricity to changes in prices for other energy sources which might be closely related or compete with it. For example, the cross elasticity between electricity and natural gas in the residential sector may be positive since increasing the price of natural gas would make it relatively less attractive than electricity and would result in an increase in demand of electricity.

- Income elasticity is the responsiveness of the demand for electricity to changes in income. This is normally positive since, if income increases, people have more money to spend, hence resulting in increased consumption of electricity.

The econometric approach to forecasting entails analyzing historic data to estimate elasticities; preparing forecasts of the trends in electricity prices, the prices of competing fuels, income, economic activity, and other independent variables; and combining the historic functional relationship with forecasts of the independent variables to prepare the forecast of electricity use. Implicit in this approach is the premise that the historic relationships between electrical use and independent variables will continue to hold in the future.

Although forecasts of economic variables and energy prices are used in B. C. Hydro's approach, the forecast of electric energy requirements corresponding to these variables is calculated on the basis of "end use" factors such as the efficiency of appliances available to residential customers, insulation levels, technically possible reductions in lighting and other commercial uses, and the actual processes which new industries plan to install. In other words, the effect of energy prices is not examined strictly through examination of the historical relationship between variables. Rather, it is examined through reference to the actual or expected response of designers, manufacturers and users of goods and processes consuming electricity.

This Appendix examines the load growths projected for the Residential, General and Bulk categories using the "top down/end use" approach relative to the forecasts of energy prices and economic variables that would be the basis of an econometric forecast. The historic and forecast relationships between these variables are examined with particular emphasis on the effects of price on energy use. The results of this analysis and the B. C. Hydro forecast of electricity requirements are compared with NERA's and DataMetric's results at the end of this Appendix.

C.2 Residential

The residential forecast is reviewed relative to incomes and prices by:

- examining past and future use per household relative to incomes per household and electricity prices; and
- estimating the changes in the forecast that would result from different assumptions concerning future electricity prices.

C.2.1 Electricity Prices and Income vs Use Per Household

Historic and projected electricity prices, real disposable income per household and electric energy use per household are presented in Figure AC-1. In terms of dollars, electricity prices declined up to 1974, increased substantially between 1974 to 1978 and then leveled off and declined slightly between 1978 and 1981. Real income per household increased significantly up to 1975 but has been almost level since then.

Electric energy use per household is plotted for customers without electric heat and for all customers including those with electric heat. The growing use of electric heat since the early 1970's and the relative prices of electricity, gas and oil influencing that change, historically and in the future, are dealt with in Part Three of this report. As is evident from Figure AC-1, the growth in the two categories of household use are similar. Both increase throughout the period but the rates of increase decline after 1975 following the changes from declining to rising electricity prices, and leveling of income per household.

Over the first three years of the forecast period electricity prices are projected to increase by some 40% from the average 1981/82 level in real terms and then decline. Thereafter the prices are forecast to be essentially constant at a level about 25% above the 1981/82 level. Real income per household is forecast to remain level until 1987 and then increase steadily. Electric energy use per household is forecast to remain essentially constant as compared to an increase of some 50 percent over the past 15 years.

It is of interest to calculate the relative proportions of household income used to purchase electricity in 1981/82 and in 2001/02. Over the period family income is projected to increase by a factor of 1.16 whereas the electricity cost is projected to be 1.27 times the 1981 level (a 25% increase in price and a 2%

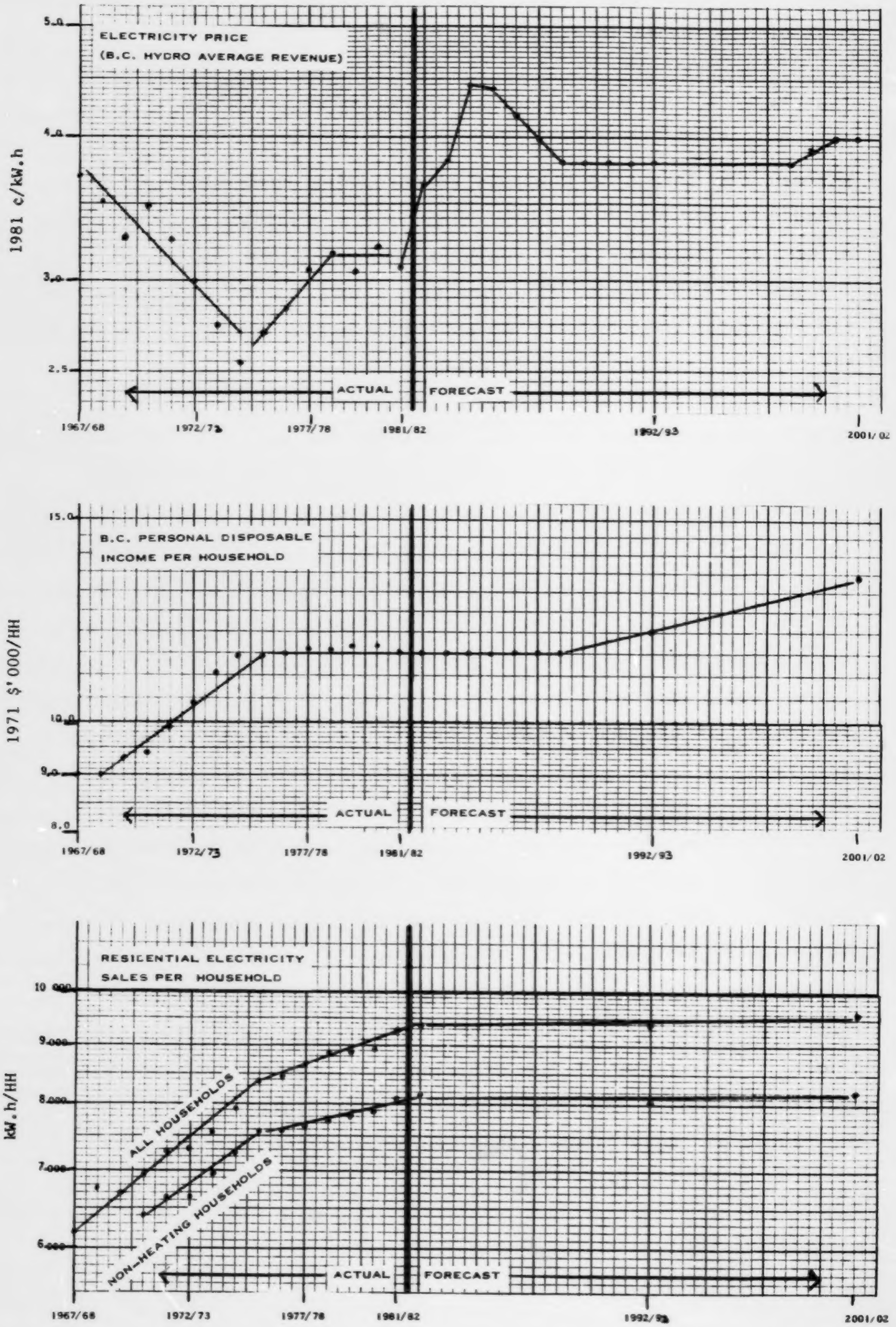
Figure AC-1

COMPARISON OF ELECTRICITY PRICE,

PERSONAL DISPOSABLE INCOME PER HOUSEHOLD AND

RESIDENTIAL ELECTRICITY USE PER HOUSEHOLD

1967/68 - 2001/02



increase in use). Thus for example if a household's electricity cost represented 3% of its income in 1981/82 it would represent 3.3% of his income in 2002/03.

C.2.2 The Effect of Electricity Prices on the Residential Forecast

Whereas the foregoing analysis compares the reasonableness of the trends in household electric energy use relative to electricity prices and incomes, this analysis addresses the impact of price changes on the residential forecast. This is done by estimating the impact of prices first on appliance useage rates and second on the capture rate for electric heat.

C.2.2.1 Effect of Electricity Prices on Appliance and Water Heating Useage Rates

Present and future residential electric energy use is a function of the number of appliances which households have, the efficiencies of those appliances and the amount householders use those appliances. For the purposes of this analysis the number of appliances which householders can purchase is assumed to be largely a function of income levels whereas changes in efficiency of appliance design and the amount of use are assumed to be influenced more by electricity prices.

Table AC-1 shows the changes in appliance and heating uses assumed over the 20 year forecast period. The projected improvements in levels of use will be partly due to the availablity of more efficient appliances and partly the result of the steps taken by householders to save energy. For example, the projected 38% reduction in freezer use at the end of the forecast period is primarily a function of the efficiency of the freezer that will be available, whereas the reduction for water heaters will be mainly the result of steps taken within the household to economize.

The reductions in electric energy use are thus a function of both the trend in prices in the rest of Canada and North America, which influence the design of appliances which will be available, and the trend in electricity prices in B. C. which will influence the extent to which homeowners take steps to reduce consumption.

This analysis focusses on the total reductions due both to rising prices generally, and to rising prices in B. C. To estimate this impact of prices on future residential sales a second forecast is made leaving the unit use rates for appliances, lighting and water heating at the 1981/82 levels over the forecast period. The resulting forecast is then compared to the residential forecast from Part Three based on the 2002/03 unit use levels.

The effect of leaving the unit uses at the 1981/82 levels increases the residential load by 1 150 GW.h to 12 885 GW.h in 1992/93 and by 3 050 GW.h to 18 281 GW.h in 2002/03.

Table AC-1

EFFECT OF PRICE ON
RESIDENTIAL ELECTRIC USE

	Average Annual Consumption		Change	
APPLIANCE	1981/82 (kW.h) (1)	2002/03 (kW.h) (2)	(kW.h) (3)	(%) (4)
1. WATER HEATER	4 200	2 000	2 200	(52)
2. RANGE	1 200	900	300	(25)
3. MICROWAVE	240	170	70	(29)
4. FRIDGE	1 440	1 080	360	(25)
5. FREEZER	1 440	900	540	(38)
6. WASHER	60	50	10	(17)
7. DRYER	900	750	150	(17)
8. DISHWASHER	360	200	160	(17)
9. BLOCKHEATER	200	150	50	(44)
10. LIGHTING	1 000	600	400	(40)
11. OTHER[a]	1 045	2 900	1 855	178
12. SPACE HEATING	5 700	3 900	1 800	(32)

[a] 'Other' includes televisions, small appliances, water beds, hot tubs, etc.

C.2.2.2 Effect of Electricity Prices on Capture Rates for Electric Space Heating

The capture rates for electric space heating in new houses are estimated in Part Three of this report based on the projected prices for electricity and natural gas. If it is assumed that electricity prices do not increase by some 25% as projected between 1981/82 and the end of the forecast period, electricity becomes a relatively more attractive alternative.

The capture rates used in the central forecast for electricity average 20% for single family homes, 60% for row houses and 50% for apartments based on the ratio of natural gas to electric heating costs being in the 0.50 to 0.64 range. If electricity prices do not increase by 25% in price, the cost ratios would be in the 0.63 to 0.80 range. The resulting capture rates are estimated to be 25% for single family homes, 75% for row houses and 63% for apartments.

These higher capture rates increase the forecast residential requirements by 86 GW.h in 1992/93 and 326 GW.h by 2002/03.

C.2.2.3 Total Electricity Price Effects and Elasticities

The increases in residential electric energy use in 1992/93 and 2002/03 that result from lower electricity prices are summarized in Table AC-2. Also shown are the reductions in B. C. electricity prices from the 1992/93 and 2002/03 levels associated with the increases in use.

Two caveats have to be made with respect to relating the changes in use with the changes in price:

- a large part of the change in electric energy use is related to improvements in appliance efficiencies that are a function of electricity prices elsewhere; the response to B. C. price changes is limited to the extent to which B. C. consumers can choose from the array of more efficient appliances. Comparing all the reduction in use due to efficiency improvement with B. C. price changes overstates the effect of B. C. prices on consumption.

- all the reductions in use relative to the base case are assumed to result from future price changes; in fact some future reductions in demand are a function of price changes that have already occured and some may not be related to prices at all.

Having acknowledged these significant limitations of the methodology, approximate price elasticities are calculated. The price elasticity for the period from 1981/82 to 1992/93 is calculated to be -0.6 and for the entire period it is -1.0.

C.3 General

The approach to reviewing the growth in General Sales relative to income and price effects is similar to that used for residential sales. First the historic and forecast growth in sales relative to prices is examined, using electric energy use per dollar of GDP rather than use per household, and, second, the assumptions in the forecast of electric energy use per unit of floor space are changed to assess the impact of prices.

C.3.1 General Sales per Dollar of GDP vs Electricity Prices

The growth in general sales per dollar of GDP is shown in Figure AC-2 together with the trend in electricity prices. The results are similar to the residential sector i.e. a flattening of the use per $ of GDP following the rise in electricity prices from 1974 to 1978.

Over the forecast period general sales per dollar of GDP increase in 1982/83, as a result of essentially constant electric energy sales and lower GDP, and then are essentially flat over the next ten years. Over the last ten years of the forecast sales per dollar of GDP decline slowly to the level experienced in the mid 1970's.

C.3.2 Sensitivity of Floor Space Use to Price

Of the 9 706 GW.h of General Sales in 1981/82, 3 719 GW.h can be related to floor space use in Commercial Buildings. This relationship allows future conservation effects to be identified. Conversely, future conservation cannot as readily be identified for the balance of the General Sales forecast.

Future sales related to commercial floor space are calculated by projecting the growth in total floor space and the future electric energy use per unit of floor space relative to present use. The use per unit of floor space is forecast to be 80% of present use for buildings constructed from 1981 to 1985, 75% from 1985 to 1991 and 70% from 1991 to 2002.

If the use per unit of floor space does not decline as projected then the floor space related electric energy requirements in 1992/93 would be 5 711 GW.h rather than 5 186 GW.h and 8 213 GW.h rather than 6 862 GW.h in 2002/03. Taking the same approach as with residential requirements, and stressing the same caveats, the price elasticity for this portion of the load is calculated to be -0.5 up to 1992/93 and -0.9 up to 2002/03[1].

---

[1] $\frac{5\ 711 - 5\ 186}{5\ 186} \div .189 = 0.5$ and $\frac{8\ 213 - 6\ 862}{6\ 862} \div .23 = 0.9$

Table AC-2

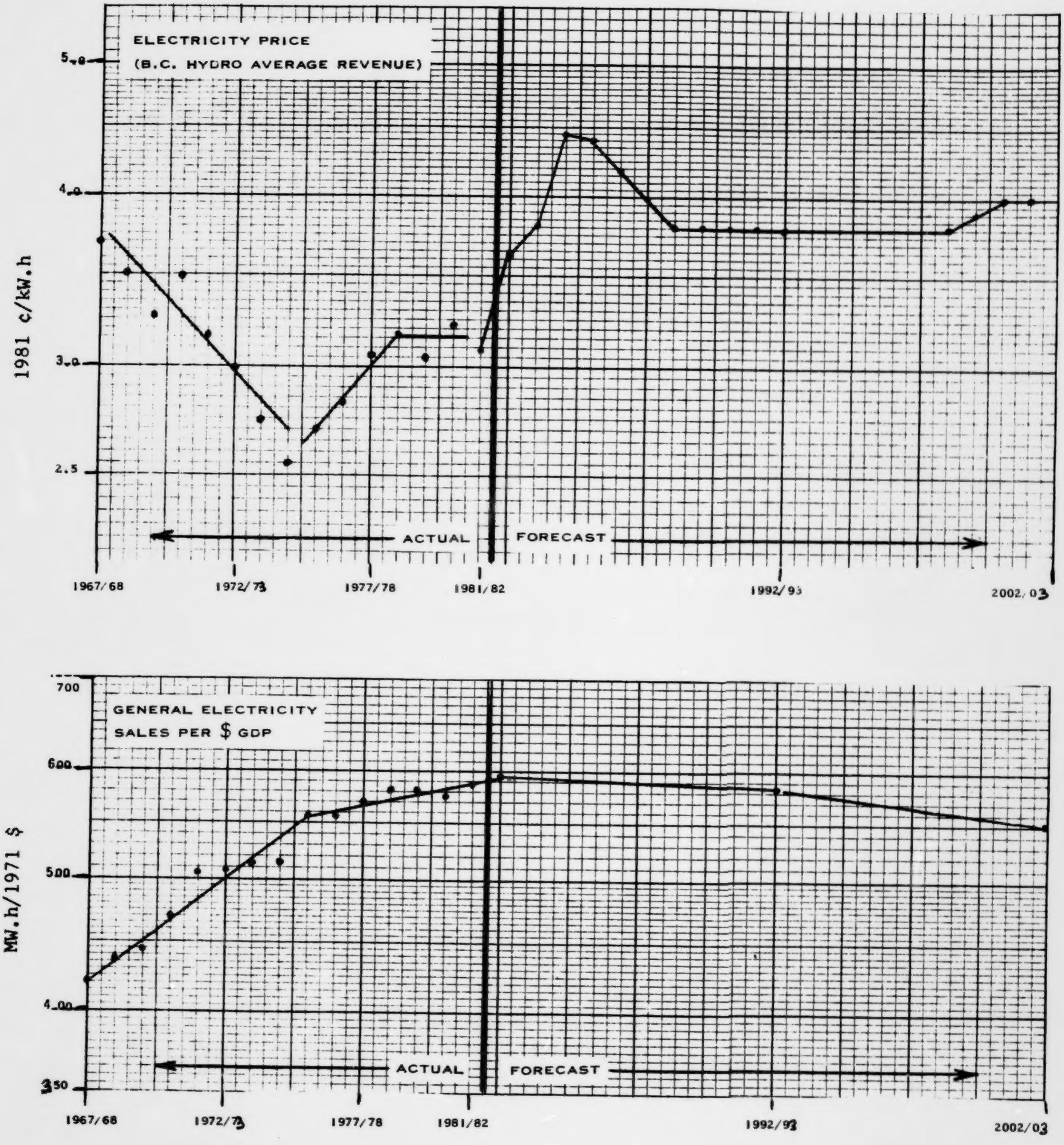
ESTIMATED EFFECTS CONSTANT REAL ELECTRICITY PRICES ON RESIDENTIAL REQUIREMENTS IN 1992/93 AND 2002/03

	1992/93	2002/03
Base Case Forecast:(GW.h)	11 740	15 231
Change in Requirements:		
As result of:		
Level of Use (GW.h)	+ 1 150	+ 3 050
Amount of Electric Heating (GW.h)	+ 86	+ 326
Total (GW.h)	+ 1 236	+ 3 376
Percent Change	+ 10.5%	+ 22.2%
Base Case Price (¢/kW.h)	3.80	4.00
Change in Price (¢/kW.h)	- 0.72	- 0.92
Percent Change in Price (Assuming all prices to follow B. C. prices)	- 18.9%	- 23.0%
Price Elasticity	- 0.6	- 1.0

Figure AC-2

COMPARISON OF ELECTRICITY PRICE AND GENERAL ELECTRICITY SALES PER $ GDP

1967/68 - 2002/03



C.4 Bulk and Industrial Self-Generation

In 1981, B. C. Hydro provided about half the electricity used by large industries. The balance, comprising about 9 000 GW.h is self-generated by industries. The industries generating and using their own electricity are Alcan, accounting for about half the total, Cominco accounting for about 25% and the pulp and paper industry accounting for the remaining 25%.

For the purposes of comparing industrial use of electricity with economic growth the existing aluminium smelter load, and future aluminium smelters that may be built and served by self-generation, are excluded. The rationale for their exclusion is the disportionate amount of electricity they consume relative to their contribution to the economy.

Estimates of annual self-generation, excluding aluminium smelters, and B. C. Hydro bulk sales are presented in Table AC-3. The self-generation has been mainly level over the past fifteen years, with the growth in industrial use being met by B. C. Hydro.

Industrial electric energy use per dollar of GDP, also shown in Table AC-3 and plotted in Figure AC-3, has declined gradually over the 15 year historical period. This decline is attributed mainly to the changing mix of industry. Even with the exclusion of the aluminium smelter the industrial base has become less electric intensive.

Over the first ten years of the forecast the electric energy use per dollar of GDP is projected to increase. This is the result of the economy coming out of the present recession and mills output and electric energy requirements increasing more rapidly than overall economic growth. For the balance of the period, electric energy use per $GDP is explained in part by the electric intensiveness of the new industry forecast for British Columbia.

Table AC-3
BULK AND INDUSTRIAL SELF-GENERATION

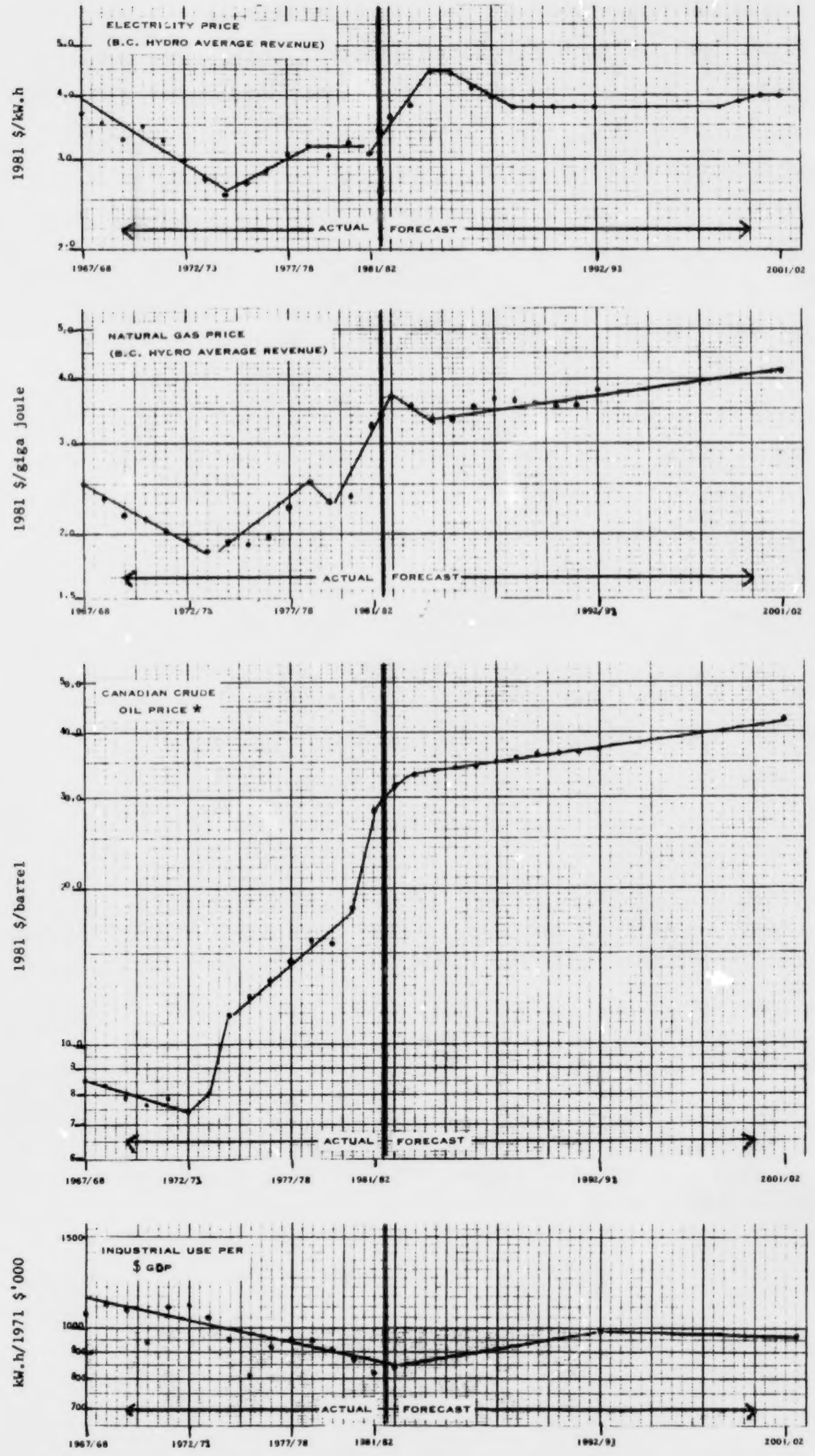
Year	Estimated Self Generation (excluding aluminium smelters) (GW.h)	Bulk Sales[b] (GW.h)	Total (GW.h)	GDP (1971 $ million)	kW.h/ $'000 GDP
1967	5 000	4 093	9 093	8 483	1 070
1968	5 400	4 545	9 945	8 909	1 120
1969	5 400	5 062	10 462	9 611	1 090
1970	4 000	5 278	9 278	9 841	940
1971	5 600	5 860	11 460	10 426	1 100
1972	5 300	7 066	12 366	11 169	1 110
1973	5 200	7 776	12 976	12 373	1 040
1974	4 600	7 714	12 314	13 003	950
1975[a]	3 400	6 808	10 208	12 686	805
1976	4 400	8 166	12 566	13 626	920
1977	4 900	8 479	13 379	14 156	945
1978	4 800	9 133	13 933	14 662	950
1979	4 800	9 217	14 017	15 438	910
1980	4 500	9 597	14 097	16 242	870
1981[a]	4 300	9 339	13 639	16 571	820
1982	4 400	9 380	13 780	16 300	845
1987	5 600	13 740	19 340	19 600	990
1992	6 500	17 295	23 795	23 300	1 020
2002	7 100	24 620	31 720	33 400	950

[a] Strikes
[b] Bulk Sales are for the fiscal year ending following March

Source: Historical self Generated loads are based on data in Stat. Can. Cat. 57-001 and 57-202 and B. C. Hydro and WKPL data and are very approximate. Forecast self generated loads are based on the Wright/Halvorson and Woodbridge Reed/Simons report.

Figure AC-3

COMPARISON OF INDUSTRIAL ELECTRICITY USE PER $ GDP
AND ELECTRICITY, NATURAL GAS & CANADIAN CRUDE OIL PRICES
1967/68 - 2001/02



* 1967/68 – 1980/81. AVERAGE ALBERTA WELLHEAD PRICE PLUS PETROLEUM COMPENSATION CHARGE PLUS CANADIAN OWNERSHIP CHARGE, 1981/82 – 2000/01. BLENDED VANCOUVER CRUDE PRICE

The growth in the pulp and paper industry is largely due to new TMP mills and the conversion of certain existing mills. The TMP mills use five times as much purchased electric energy per tonne of pulp as chemical pulp production. The new petrochemical industry, commencing with the first LNG project in the mid-1980's, is projected to have total electric energy requirements of 1 780 GW.h by 1992/93. This, as expansion forecast in the mining industry, is very electrical intensive.

C.5 Comparison of Results - B. C. Hydro with DataMetrics and Nera

This section compares B. C. Hydro's forecast of electric load and its approximate price elasticities, estimated in this Appendix, with DataMetrics electric energy forecast and with the price elasticities estimated by both DataMetrics and NERA.

C.5.1 B. C. Hydro's and DataMetrics' Forecasts[1]

The B. C. Hydro and DataMetric forecasts are not directly comparable due to differences in the loads included in each.

[1] The DataMetrics report "Projections of British Columbia Energy Demand, Residential and Commercial and Industrial Sectors 1982-2001" September 1982 present three electricity price forecasts:

- prices remaining constant at the 1982/83 level;
- decreasing at 1% per year over the forecast period; and
- increasing at 1% per year.

Subsequent to the completion of that report, B. C. Hydro asked DataMetrics to prepare a fourth forecast based on the price forecast presented in Part Two of this report. It is this fourth forecast that is presented in Table AC-4.

Whereas the DataMetrics forecast is for the whole province, the B. C. Hydro forecast is for its franchise area and excludes certain industrial loads. Adjustments are made in Table AC-4 to make the two forecasts approximately comparable. It should be noted, however, that WKP&L has not been included in the B. C. Hydro figures.

DataMetrics have prepared forecasts for residential, commercial (general) and industrial (bulk) sales in British Columbia. There are slight differences between B. C. Hydro's and DataMetrics' residential and commercial/general categories but the principal difference is in the bulk/industrial category in which DataMetrics' include all industrial self-generation.

As indicated in the previous section, B. C. Hydro's bulk sales only account for about half of the total electric requirements by large industries in British Columbia. In order to make B. C. Hydro's and DataMetrics' forecast comparable, the figures from Table AC-3 for bulk plus self generation excluding aluminum smelters are added to B. C. Hydro's residential and general forecasts as shown in Table AC-4. Also shown in Table AC-4 are the incremental mechanical pulp and petrochemical loads that are subtracted from the total to determine future requirements excluding these electric intensive loads.

The DataMetrics' sales forecast is shown at the bottom of the Table. To make it comparable to the B. C. Hydro figures it is first converted from petajoules to GW.h and then the existing aluminum smelter load is removed from the figures. The DataMetrics forecast results in a growth rate of 3.6% per year to 2002/03 and the B. C. Hydro forecast, before adjustments, is also 3.6% per year and after removal of the new electric intensive industries is 3.0% per year.

Table AC-4

COMPARISON OF B. C. HYDRO'S AND DATAMETRICS' FORECASTS OF ELECTRIC REQUIREMENTS[a]

(GW.h)

	1982/83	1987/88	1992/93	2002/03	Average Annual Growth Rates 1982/83 to 2002/03 (%/year)
B. C. HYDRO					
1. Residential Sales	8 940	10 337	11 735	15 231	
2. General Sales	9 683	11 539	13 540	18 445	
3. Bulk plus Self Gen. Excluding Al Smelters	13 780	19 340	23 795	31 720	
4. Total	32 400	41 200	49 000	65 400	3.6
5. Less: Mechanical Pulp		1 300	2 400	3 700	
6. Less: Petrochemicals		800	1 800	2 900	
7. Adjusted Load Excluding Electric Intensive Components	32 400	39 100	44 800	58 800	3.0
DATAMETRICS					
8. Total Electric Sales in PJ	132.4	154.7	183.7	251.2	
9. Sales in GW.h	36 800	43 000	51 000	69 800	
10. Sales Excluding Aluminum Smelter (4 600 GW.h for Existing Smelter)	32 200	38 400	46 400	65 200	3.6

Note: [a] The DataMetrics load includes WKP&L but the B. C. Hydro figures do not. As such comparisons in growth rates are more meaningful than comparisons of absolute numbers.

Lines 1&2	Residential and General Sales are from Parts 3 and 4.
Line 3.	Bulk plus Self-Generation excluding smelters is from Table AC-3.
Line 4.	Rounded to nearest 100 GW.h.
Lines 5&6	The mechanical pulp and petrochemical loads are estimated from data in Part 5 and the Woodbridge Reed report.
Line 8.	From DataMetrics using B. C. Hydro forecast of average revenue requirements to increase sector electricity prices. Estimate of electricity demand in 2002 is extrapolated.
Line 9.	Converted using 277.8 GW.h = 1 PJ.

C.5.2 B. C. Hydro's, DataMetrics' and NERA's Price Elasticities

Table AC-5 presents the price elasticities that have been prepared by B. C. Hydro, DataMetrics' and NERA.

The limitations of the B. C. Hydro estimates are discussed in Section C.2 of this appendix and not repeated here. The limitations of the DataMetrics' estimates are considered to be as follows:

- in the case of the long term residential elasticity, DataMetrics' comments in its report that it "may be high and suggests further model testing should be undertaken":
- the industrial sector price elasticities are estimated by comparing total energy use i.e. electricity, gas, oil, etc., to a composite energy price index. Hence they do not allow a response in electricity use to changes in electricity prices relative to other fuels.

In the case of NERA's estimates of elasticity, B. C. Hydro's figures fall within the range for both the residential and general categories. B. C. Hydro has not prepared estimates of price elasticity for either the pulp and paper or mining sectors. However the work done in the sectoral analyses with respect to the way these industries use electricity and their opportunities for reducing electrical use suggests that factors other than price elasticity are more important in determining future electric requirements. In the case of pulp and paper the trend, which is already well underway, is towards more electric intensive processes so as to more fully utilize the limited resource base.

In the case of mining, where most of the energy requirements are for earth moving and grinding, the trend is also to use more electricity in place of oil and the opportunities for improving efficiencies are limited.

Table AC-5

COMPARISON OF B. C. HYDRO DATAMETRICS AND NERA ESTIMATES OF PRICE ELASTICITY OF ELECTRICITY DEMAND

	B. C. Hydro	DataMetrics		NERA	
		Short Run	Long Run	Short Run	Long Run
Residential	-0.6 & -1.0	-0.09	-1.3	-0.15 to -0.30	-0.70 to -1.50
General/Commercial	-0.5 & -0.9	-0.11[a] to -0.16[a]	-0.46 to -0.75	-0.10 to -0.30	-0.40 to -1.00
Bulk/Industrial	-	-0.45[a] to -0.53[a]		-	-
Pulp & Paper	-	-	-	-0.25 to -0.35	-0.70 to -1.60
Mining	-	-	-	-0.10 to -0.30	-0.40 to -1.00

[a] Elasticities calculated holding total energy demand constant.

APPENDIX D

ELECTRIC - RESIDENTIAL DATA

			Page
D.1	Introduction		227
	TABLE AD-1	Residential Accounts Detail - Historic and Probable Projections - Lower Mainland Division	228
	TABLE AD-2	Residential Accounts Detail - Historic and Probable Projections - Central Interior Division	229
	TABLE AD-3	Residential Accounts Detail - Historic and Probable Projections - North Coast Division	230
	TABLE AD-4	Residential Accounts Detail - Historic and Probable Projections - South Interior Division	231
	TABLE AD-5	Residential Accounts Detail - Historic and Probable Projections - Vancouver Island Division	232

APPENDIX D

ELECTRIC - RESIDENTIAL DATA

D.1 Introduction

This appendix presents the Divisional summaries supporting the residential forecast shown in Table 3-4.

The variation in useage patterns among dwelling types has been estimated as an input to the residential model from B. C. Hydro sales data. Future changes have been applied to each dwelling type, ensuring that the relationship among dwelling types is maintained. For non-heating residential accounts the average annual use per account by dwelling type is as follows:

	Annual Use Per Non-Heating Residential Account (kW.h)	
	1981/82	1992/93
House	10 090	10 360
Row	7 540	7 750
Apartment	3 180	3 270
Mobile	9 380	9 640
Seasonal	3 360	3 450
Average	8 129	8 025

B. C. HYDRO
RESIDENTIAL ACCOUNTS DETAIL - HISTORIC AND PROBABLE PROJECTIONS
LOWER MAINLAND DIVISION

FISCAL YEARS	NON-HEATING					HEATING					TOTAL					Average Heating Accts. % of Total
	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	
HISTORIC[a]																
1971/72	359 074	14 709	6 196	211	2 225	8 108	954	19 240	1 348	156	367 182	15 663	6 485	258	2 381	2.2
1972/73	374 888	15 814	6 165	-31	2 311	9 267	1 159	17 805	-1 435	165	384 155	16 973	6 445	-40	2 476	2.4
1973/74	390 391	15 503	6 401	236	2 499	9 345	78	17 442	-363	163	399 736	15 581	6 659	214	2 662	2.3
1974/75	404 638	14 247	6 648	247	2 690	9 940	595	17 907	465	178	414 578	14 842	6 918	259	2 868	2.4
1975/76	417 043	12 405	6 973	325	2 908	11 052	1 112	18 820	913	208	428 095	13 517	7 279	361	3 116	2.6
1976/77	429 894	12 851	6 998	25	3 009	14 302	3 250	18 198	-622	260	444 196	16 101	7 359	80	3 269	3.2
1977/78	444 160	14 266	7 045	47	3 129	16 993	2 691	18 532	334	315	461 153	16 957	7 468	109	3 444	3.7
1978/79	454 229	10 069	7 135	90	3 241	24 172	7 179	17 244	-1 288	416	478 401	17 248	7 645	177	3 657	5.1
1979/80	458 364	4 135	7 286	151	3 340	31 981	7 809	15 175	-2 069	485	490 345	11 944	7 801	156	3 825	6.5
1980/81	469 089	10 725	7 385	99	3 464	36 154	4 173	14 650	-525	530	505 243	14 898	7 904	103	3 994	7.2
1981/82	477 383	8 294	7 615	230	3 635	40 409	4 255	15 163	513	613	517 792	12 549	8 203	299	4 248	7.8
Av. Annual Growth-% 10 Years: 71/72-81/82	2.9		2.1		5.0	17.4		-		14.7	3.5		2.4		6.0	
PROJECTIONS																
1982/83	484 600	7 217	7 660	45	3 712	45 800	5 391	14 880	-283	682	530 400	12 608	8 285	82	4 394	8.6
1983/84	491 200	6 600	7 685	25	3 775	51 600	5 800	14 595	-285	753	542 800	12 400	8 340	55	4 528	9.5
1984/85	498 600	7 400	7 700	15	3 839	57 700	6 100	14 375	-220	829	556 300	13 500	8 390	50	4 668	10.4
1985/86	506 400	7 800	7 710	10	3 904	63 500	5 800	14 165	-210	899	569 900	13 600	8 430	40	4 803	11.1
1986/87	514 600	8 200	7 720	10	3 973	69 200	5 700	13 980	-185	967	583 800	13 900	8 460	30	4 940	11.9
1987/88	523 200	8 600	7 730	10	4 044	74 900	5 700	13 790	-190	1 033	598 100	14 300	8 490	30	5 077	12.5
1988/89	532 200	9 000	7 735	5	4 117	80 500	5 600	13 635	-155	1 098	612 700	14 600	8 510	20	5 215	13.1
1989/90	541 600	9 400	7 740	5	4 192	86 000	5 500	13 495	-140	1 161	627 600	14 900	8 530	20	5 353	13.7
1990/91	551 200	9 600	7 740	-	4 266	91 300	5 300	13 370	-125	1 221	642 500	14 900	8 540	10	5 487	14.2
1991/92	561 200	10 000	7 740	-	4 344	96 600	5 300	13 250	-120	1 280	657 800	15 300	8 550	10	5 624	14.7
1992/93	571 300	10 100	7 745	5	4 425	102 100	5 500	13 140	-110	1 342	673 400	15 600	8 565	15	5 767	15.2
Av. Annual Growth-% 11 Years: 81/82-92/93	1.6		0.2		1.8	8.8		-		7.4	2.4		0.4		2.8	

NOTES:

[a] Effective 1 April 1981 - Lillooet transferred to South Interior Division. Historic has been adjusted to reflect reorganization.

10 September 1982

B. C. HYDRO
RESIDENTIAL ACCOUNTS DETAIL - HISTORIC AND PROBABLE PROJECTIONS
CENTRAL INTERIOR DIVISION

FISCAL YEARS	NON-HEATING					HEATING					TOTAL					Average Heating Accts. % of Total
	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	
HISTORIC																
1971/72	39 663	2 459	7 362	508	292	3 524	416	21 850	614	77	43 187	2 875	8 544	581	369	8.2
1972/73	43 648	3 985	7 606	244	332	3 641	117	21 697	-153	79	47 289	4 102	8 691	147	411	7.7
1973/74	47 810	4 162	7 969	363	381	4 011	370	21 690	-7	87	51 821	4 532	9 031	340	468	7.7
1974/75	51 516	3 706	8 444	475	435	4 205	194	21 403	-287	90	55 721	3 900	9 422	391	525	7.5
1975/76	54 356	2 840	8 720	276	474	4 422	217	22 162	759	98	58 778	3 057	9 732	310	572	7.5
1976/77	57 134	2 778	8 454	-266	483	5 581	1 159	21 502	-660	120	62 715	3 937	9 615	-117	603	8.9
1977/78	59 805	2 671	8 862	408	530	5 816	235	22 868	1 366	133	65 621	2 906	10 103	488	663	8.9
1978/79	61 781	1 976	8 900	38	550	6 988	1 172	22 582	-286	158	68 769	3 148	10 290	187	708	10.2
1979/80	63 777	1 996	8 903	3	568	7 845	857	19 762	-2 820	155	71 622	2 853	10 092	-198	723	11.0
1980/81	66 612	2 835	8 785	-118	585	8 681	836	18 278	-1 484	159	75 293	3 671	9 879	-213	744	11.5
1981/82	69 278	2 666	8 941	156	620	9 488	807	18 303	25	173	78 766	3 473	10 068	189	793	12.0
Av. Annual Growth-% 10 Years: 71/72-81/82	5.7		2.0		7.8	10.4		-		8.4	6.2		1.7		8.0	
PROJECTIONS																
1982/83	70 800	1 522	8 960	19	634	10 100	612	18 115	-188	183	80 900	2 134	10 100	32	817	12.5
1983/84	72 700	1 900	8 965	5	652	10 700	600	17 905	-210	192	83 400	2 500	10 120	20	844	12.8
1984/85	75 000	2 300	8 960	-5	672	11 200	500	17 685	-220	198	86 200	2 800	10 095	-25	870	13.0
1985/86	77 300	2 300	8 950	-10	692	12 000	800	17 450	-235	209	89 300	3 100	10 090	-5	901	13.4
1986/87	79 800	2 500	8 935	-15	713	12 800	800	17 220	-230	220	92 600	3 300	10 075	-15	933	13.8
1987/88	82 400	2 600	8 930	-5	736	13 700	900	17 020	-200	233	96 100	3 500	10 085	10	969	14.3
1988/89	85 100	2 700	8 925	-5	760	14 500	800	16 835	-185	244	99 600	3 500	10 080	-5	1 004	14.6
1989/90	87 800	2 700	8 915	-10	783	15 400	900	16 655	-180	256	103 200	3 600	10 070	-10	1 039	14.9
1990/91	90 600	2 800	8 895	-20	806	16 300	900	16 480	-175	269	106 900	3 700	10 055	-15	1 075	15.2
1991/92	93 500	2 900	8 875	-20	830	17 300	1 000	16 305	-175	282	110 800	3 900	10 035	-20	1 112	15.6
1992/93	96 400	2 900	8 855	-20	854	18 300	1 000	16 135	-170	295	114 700	3 900	10 015	-20	1 149	16.0
Av. Annual Growth-% 11 Years: 81/82-92/93	3.0		-		3.0	6.2		-		5.0	3.5		-		3.4	

10 September 1982

TABLE AD-3
NORTH COAST DIVISION

B. C. HYDRO
RESIDENTIAL ACCOUNTS DETAIL - HISTORIC AND PROBABLE PROJECTIONS
NORTH COAST DIVISION

FISCAL YEARS	NON-HEATING					HEATING					TOTAL					Average Heating Accts. % of Total
	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	
HISTORIC																
1971/72	15 521	585	8 698	-140	135	2 369	563	24 483	673	58	17 890	1 148	10 788	335	193	13.2
1972/73	15 851	330	8 769	71	139	2 860	491	24 126	-357	69	18 711	821	11 116	328	208	15.3
1973/74	16 389	538	9 275	506	152	3 055	195	24 877	751	76	19 444	733	11 726	610	228	15.7
1974/75	17 021	632	9 753	478	166	3 335	280	23 088	-1 789	77	20 356	912	11 938	212	243	16.4
1975/76	17 553	532	10 198	445	179	3 720	385	23 656	568	88	21 273	917	12 551	613	267	17.5
1976/77	18 119	566	9 879	-319	179	4 278	558	21 973	-1 683	94	22 397	1 124	12 189	-362	273	19.1
1977/78	18 351	232	10 027	148	184	4 462	184	23 532	1 559	105	22 813	416	12 668	479	289	19.6
1978/79	18 359	8	9 944	-83	183	4 961	499	22 594	-938	112	23 320	507	12 634	-34	295	21.3
1979/80	18 826	467	9 773	-171	184	5 200	239	20 959	-1 635	109	24 026	706	12 194	-440	293	21.6
1980/81	19 462	636	9 886	113	192	5 802	602	19 103	-1 856	111	25 264	1 238	12 003	-191	303	23.0
1981/82	20 243	781	10 168	282	206	6 357	555	19 161	58	122	26 600	1 336	12 317	314	328	23.9
Av. Annual Growth-% 10 Years: 71/72-81/82	2.7		1.6		4.3	10.4		-		7.7	4.0		1.3		5.4	
PROJECTIONS																
1982/83	20 690	447	10 200	32	211	6 830	473	18 890	-271	129	27 520	920	12 355	38	340	24.8
1983/84	21 200	510	10 215	15	217	7 200	370	18 600	-290	134	28 400	880	12 360	5	351	25.4
1984/85	21 800	600	10 220	5	223	7 700	500	18 300	-300	141	29 500	1 100	12 340	-20	364	26.1
1985/86	22 500	700	10 205	-15	230	8 200	500	18 000	-300	148	30 700	1 200	12 315	-25	378	26.7
1986/87	23 300	800	10 190	-15	237	8 700	500	17 705	-295	154	32 000	1 300	12 220	-95	391	27.2
1987/88	24 100	800	10 155	-35	245	9 200	500	17 495	-210	161	33 300	1 300	12 190	-30	406	27.6
1988/89	24 900	800	10 115	-40	252	9 700	500	17 290	-205	168	34 600	1 300	12 140	-50	420	28.0
1989/90	25 700	800	10 070	-45	259	10 200	500	17 080	-210	174	35 900	1 300	12 060	-80	433	28.4
1990/91	26 600	900	10 005	-65	266	10 600	400	16 865	-215	179	37 200	1 300	11 960	-100	445	28.5
1991/92	27 500	900	9 935	-70	273	11 200	600	16 645	-220	186	38 700	1 500	11 860	-100	459	28.9
1992/93	28 400	900	9 860	-75	280	11 800	600	16 425	-220	194	40 200	1 500	11 790	-70	474	29.4
Av. Annual Growth-% 11 Years: 81/82-92/93	3.1		-		2.8	5.8		-		4.3	3.8		-		3.4	

10 September 1982

B. C. HYDRO
RESIDENTIAL ACCOUNTS DETAIL - HISTORIC AND PROBABLE PROJECTIONS
SOUTH INTERIOR DIVISION

FISCAL YEARS	NON-HEATING					HEATING					TOTAL					Average Heating Accts. % of Total
	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	
HISTORIC[a]																
1971/72	53 334	5 524	6 787	366	362	5 516	800	19 398	314	107	58 850	6 324	7 969	411	469	9.4
1972/73	60 293	6 959	7 032	245	424	6 313	797	18 850	-548	119	66 606	7 756	8 152	183	543	9.5
1973/74	65 850	5 557	7 320	288	482	6 918	605	17 924	-926	124	72 768	6 162	8 328	176	606	9.5
1974/75	70 996	5 146	7 817	497	555	7 878	960	18 406	482	145	78 874	6 106	8 875	547	700	10.0
1975/76	74 543	3 547	8 130	313	606	9 290	1 412	19 591	1 185	182	83 833	4 959	9 400	525	788	11.1
1976/77	77 535	2 992	8 087	-43	627	11 408	2 118	19 197	-394	219	88 943	5 110	9 512	112	846	12.8
1977/78	80 112	2 577	8 251	164	661	13 026	1 618	19 807	610	258	93 138	4 195	9 867	355	919	14.0
1978/79	81 613	1 501	8 350	99	681	15 535	2 509	20 142	335	313	97 148	4 010	10 236	369	994	16.0
1979/80	82 626	1 013	8 224	-126	680	17 499	1 964	17 229	-2 913	301	100 125	2 977	9 798	-438	981	17.5
1980/81	84 450	1 824	8 306	82	702	18 926	1 427	16 213	-1 016	306	103 376	3 251	9 753	-45	1 008	18.3
1981/82	88 060	3 610	8 528	222	751	20 047	1 121	16 497	284	331	108 107	4 731	10 005	252	1 082	18.5
Av. Annual Growth-% 10 Years: 71/72-81/82	5.1		2.3		7.6	13.8		-		12.0	6.3		2.3		8.7	
PROJECTIONS																
1982/83	90 460	2 400	8 545	17	773	21 540	1 493	16 470	-27	355	112 000	3 893	10 070	65	1 128	19.2
1983/84	92 750	2 290	8 560	15	794	22 650	1 110	16 440	-30	372	115 400	3 400	10 105	35	1 166	19.6
1984/85	95 400	2 650	8 565	5	817	23 800	1 150	16 400	-40	390	119 200	3 800	10 130	25	1 207	20.0
1985/86	98 100	2 700	8 560	-5	840	25 100	1 300	16 360	-40	411	123 200	4 000	10 155	25	1 251	20.4
1986/87	101 100	3 000	8 560	-	865	26 400	1 300	16 325	-35	431	127 500	4 300	10 165	10	1 296	20.7
1987/88	104 100	3 000	8 545	-15	890	27 800	1 400	16 230	-95	451	131 900	4 400	10 170	5	1 341	21.1
1988/89	107 100	3 000	8 535	-10	914	29 300	1 500	16 140	-90	473	136 400	4 500	10 170	-	1 387	21.5
1989/90	110 100	3 000	8 520	-15	938	30 800	1 500	16 050	-90	494	140 900	4 500	10 165	-5	1 432	21.9
1990/91	113 200	3 100	8 495	-25	962	32 300	1 500	15 950	-100	515	145 500	4 600	10 150	-15	1 477	22.2
1991/92	116 400	3 200	8 475	-20	986	34 000	1 700	15 850	-100	539	150 400	4 900	10 140	-10	1 525	22.6
1992/93	119 600	3 200	8 460	-15	1 012	35 700	1 700	15 755	-95	562	155 300	4 900	10 135	-5	1 574	23.0
Av. Annual Growth-% 11 Years: 81/82-92/93	2.8		-		2.7	5.4		-		4.9	3.3		0.1		3.5	

NOTES:

[a] Effective 1 April, 1981 - Lillooet transferred from Lower Mainland Division. Historic has been adjusted to reflect reorganization.

10 September 1982

MST193

B. C. HYDRO
RESIDENTIAL ACCOUNTS DETAIL - HISTORIC AND PROBABLE PROJECTIONS
VANCOUVER ISLAND DIVISION

(Assumes Natural Gas on Vancouver Island by 1986/87)

FISCAL YEARS	NON-HEATING					HEATING					TOTAL					Average Heating Accts. % of Total
	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	Av. No. Accounts	Ann. Incr.	Av. kW.h Use	Ann. Incr.	Sales GW.h	
HISTORIC																
1971/72	115 250	3 792	7 445	240	858	10 534	1 222	18 511	1 436	195	125 784	5 014	8 371	405	1 053	8.4
1972/73	120 392	5 142	7 384	-61	889	11 863	1 329	17 871	-640	212	132 255	6 471	8 325	-46	1 101	9.0
1973/74	127 099	6 707	7 711	327	980	12 899	1 036	17 986	115	232	139 998	7 743	8 657	332	1 212	9.2
1974/75	133 338	6 239	8 047	336	1 073	14 618	1 719	18 881	895	276	147 956	7 958	9 118	461	1 349	9.9
1975/76	137 015	3 677	8 437	390	1 156	17 821	3 203	20 145	1 264	359	154 836	6 880	9 785	667	1 515	11.5
1976/77	141 791	4 776	8 456	19	1 199	22 636	4 815	19 217	-928	435	164 427	9 591	9 938	153	1 634	13.8
1977/78	145 034	3 243	8 419	-37	1 221	27 504	4 868	18 725	-492	515	172 538	8 111	10 062	124	1 736	15.9
1978/79	145 878	844	8 357	-62	1 219	33 878	6 374	18 268	-457	619	179 756	7 218	10 224	162	1 838	18.8
1979/80	144 336	-1 542	8 454	97	1 220	40 567	6 689	16 879	-1 389	685	184 903	5 147	10 302	78	1 905	21.9
1980/81	142 758	-1 578	8 600	146	1 228	48 077	7 510	15 918	-961	765	190 835	5 932	10 443	141	1 993	25.2
1981/82	142 696	-62	8 917	317	1 272	55 809	7 732	16 435	517	917	198 505	7 670	11 030	587	2 189	28.1
Av. Annual Growth-% 10 Years: 71/72-81/82	2.2		1.8		4.0	18.1		-		16.7	4.7		2.8		7.6	
PROJECTIONS																
1982/83	142 300	-396	8 930	13	1 271	60 800	4 991	16 290	-145	990	203 100	4 595	11 130	100	2 261	29.9
1983/84	141 700	-600	8 945	15	1 268	65 100	4 300	16 140	-150	1 051	206 800	3 700	11 215	85	2 319	31.5
1984/85	141 400	-300	8 950	5	1 266	70 300	5 200	15 975	-165	1 123	211 700	4 900	11 285	70	2 389	33.2
1985/86	141 700	300	8 950	-	1 268	76 200	5 900	15 795	-180	1 204	217 900	6 200	11 345	60	2 472	35.0
1986/87	143 700	2 000	8 725	-225	1 254	80 800	4 600	15 560	-235	1 257	224 500	6 600	11 185	-160	2 511	36.0
1987/88	147 000	3 300	8 520	-205	1 252	84 400	3 600	15 310	-250	1 292	231 400	6 900	10 995	-190	2 544	36.5
1988/89	150 400	3 400	8 320	-200	1 251	87 900	3 500	15 075	-235	1 325	238 300	6 900	10 810	-185	2 576	36.9
1989/90	153 700	3 300	8 215	-105	1 263	91 400	3 500	14 940	-135	1 366	245 100	6 800	10 725	-85	2 629	37.3
1990/91	157 000	3 300	8 105	-110	1 272	94 900	3 500	14 790	-150	1 404	251 900	6 800	10 625	-100	2 676	37.7
1991/92	160 500	3 500	7 990	-115	1 282	98 500	3 600	14 640	-150	1 442	259 000	7 100	10 515	-110	2 724	38.0
1992/93	164 000	3 500	7 880	-110	1 292	102 100	3 600	14 490	-150	1 479	266 100	7 100	10 415	-100	2 771	38.4
Av. Annual Growth-% 11 Years: 81/82-92/93	1.3		-		0.1	5.6		-		4.4	2.7		-		2.2	

10 September 1982

MST194

APPENDIX E

GENERAL SALES DATA

Page

E.1 Introduction 234

E.2 Commercial Buildings 234

Table AE-1 Forecasts of Ratios of Unit Electricity Use 237

Table AE-2 Formula for Calculation of Electric Energy Requirements 238

Table AE-3 Electric Energy Requirements for Public Elementary and Secondary Educational Facilities 241

Table AE-4 Electric Energy Requirements for Post-Secondary Educational Facilities 244

Table AE-5 Electric Energy Requirements for Acute and Extended Care Bed Hospitals 248

APPENDIX E

GENERAL SALES DATA

E.1 Introduction

This Appendix presents the disaggregated "top down/end use" approach to forecast commercial building, school and hospital energy requirements. In all cases, electric energy consumption is considered to be largely a function of floor space, with actual floor space being a function of GDP for commercial buildings and population for schools and hospitals. The forecast of each group is discussed below.

A breakdown of General sales and customers by Division is shown in the tables included in Appendix G.

E.2 Commercial Buildings

The energy use for Wholesale and Retail Trade, Finance, Insurance and Real Estate, and portions of Community, Business and Personal Services and Public Administration categories are considered to be largely a function of floor space and energy use per unit area of floor space. There is very limited information on the rate of growth of floor space relative to economic and demographic variables, and better, but still tentative information on the future trends in energy use per unit area of floor space.

Considerable effort was made to estimate the total existing commercial floor space in the province, but the resulting estimates varied widely and could not be rationalized for use in this forecast. To accommodate this situation, a simple model is developed and a range of variables examined.

The following information available on key variables is used in preparing a forecast:

- data on prestige floor space for the Lower Mainland presented in the MEMPR report for the 1968 to 1980 period indicate that prestige floor space for that area has been growing at about 1.5 times GDP;

- total commercial floor space in the Lower Mainland area, excluding warehouses, grew 5.4% between 1980 and 1981, whereas GDP during the same period grew at a 2.0% annual rate; and

- in 1981/82, which is the only year for which floor space related electric energy has been classified to date, approximately 50% of total general sales are floor space related. The growth in total general sales has varied as follows relative to GDP:

  1966 to 1981 = 1.51
  1966 to 1976 = 1.55
  1976 to 1981 = 1.20

As data are not available on the trend in floor space relative to total general sales it is assumed that this portion grows at the same rate as total general sales. In the 1966 to 1976 period, prior to the advent of significant conservation measures and thus a period of fairly constant use per unit of floor space, the data would indicate floor space was probably growing at about 1.5 times GDP. This rate is similar to that indicated by the growth in prestige floor space.

Since 1976, the reduction in the ratio of energy growth to GDP is estimated to be a function of both conservation in existing buildings and lower use in new buildings built during the period. For example, a 5% reduction in consumption levels in existing buildings plus an energy use rate for new buildings completed after

1978 of 85% of that found in existing buildings could account for the reductions to the 1.2 ratio with floor space continuing to grow at 1.5 times GDP.

Having used the limited data available to ascertain the likely historic ratio of growth in floor space relative to GDP, the next step is to forecast a ratio. It appears unlikely that the 1.5 historical ratio could be sustained over the forecast period. In fact, in the longer term floor space growth equal to GDP is expected. For the purpose of this study, floor space is projected to continue to grow at 1.5 times GDP growth during the period of relatively low average GDP growth from 1981 to 1985, 1.25 times GDP growth from 1985 to 1991 and 1.00 times GDP growth from 1991 to 2001.

Electric energy use in new commercial floor space can vary significantly with the type of activity. For example, electricity use in a warehouse is substantially lower than in a modern office. Furthermore, electric energy use factors in new commercial floor space are lower than in existing stock. In office buildings, the extent of this decrease can vary substantially, but is seldom less than 20% and can be as high as 60%. Other commercial floor space, such as recreation, short term accomodation, restaurants and warehouses generally do not exhibit large energy use factor declines between new and existing stock because they have low use rates already or because the nature of the buildings' use makes further conservation difficult.

After reviewing the energy use factors for new commercial floor space, a ratio between electric energy use in existing and new stock is developed for various intervals over the forecast period and is shown in Table AE-1. It is assumed that the easiest and least costly reductions in use in existing buildings have been made and that future reductions will be somewhat offset by the installation of more energy intensive equipment such as computers and word processors.

Table AE-1

FORECASTS OF RATIOS OF UNIT ELECTRICITY USE FOR NEW COMMERCIAL FLOOR SPACE TO EXISTING FLOOR SPACE AND GDP

Period	Energy Use Ratios[a]	Ratio of Floor Space Growth to GDP	GDP Growth[b] %/yr.
1981-85	0.80	1.5	2.3
1985-91	0.75	1.25	3.5
1991-2001	0.70	1.0	3.7

[a] This is the ratio of unit electric energy use in new to existing commercial building stock. The building functions are wholesale and retail trade; finance, insurance and real estate; and portions of community, business and personal services and public administration activity not included in hospital, education and street lighting energy use. Office buildings would have electric energy use factors below those shown, but other activities included in this sector do not achieve conservation levels of office buildings. The ratio is based upon material in Energy Use Projects 7833 (lighting), 7854 (motors) and 7856 (space heating) as well as analysis in other Canadian regions.

[b] The 1981-85 GDP growth is low due to a decline in economic activity in 1982.

Using a reasonable estimate of demolition for existing commercial floor space (0.5% per year of existing stock) and the factors discussed above, a formula is developed to describe the growth in electric energy requirements for commercial floor space used for certain functions[1]. The formula and the results using the factors developed above are shown on Table AE-2. They indicate that commercial electric energy growth exceeds that of GDP, over the first few years but is less than GDP for the balance of the forecast period.

---

[1] As described earlier, the commercial floorspace electric energy requirements are associated with Retail and Wholesale Trade, Finance, Insurance and Real Estate, the portions of Community, Business and Personal Service and Public Administration not forecast elsewhere in this study.

Table AE-2

FORMULA FOR CALCULATION OF ELECTRIC ENERGY REQUIREMENTS IN CERTAIN COMMERCIAL FLOOR SPACE

FORMULA

Existing floor space = a m^2

Energy use in existing buildings = b $kW.h/m^2$

Growth in floor space = "x" times GDP Growth
where "x" = 1.5 in 1981-1985
"x" = 1.25 in 1985-1991
"x" = 1.00 in 1991-2001

Energy use in new buildings = F b $kW.h/m^2$
Where F = the ratio of energy use in a new building to that in an existing building

Demolition rate = .005

Energy use in Yr 0 = ab

$$\text{Energy use in Yr 1} = (1 - .005)\ ab + (1.5\ GDPG)(ab)(F) + .005\ ab\ (F)$$

$$\text{Generally, energy use in Yr } n = (1 - (n)(.005))ab + ((1 + (x)\ GDPG)^n - 1)(ab)\ (F) + (n)(.005)(ab)\ (F)$$

CALCULATIONS

Increase 1981-85

n = 4, GDPG = 2.3%/yr and F = .80

$$\text{Energy use Yr 4} = (1 - (4)(.005)ab + (1.0345)^4 - 1)(ab)\ (.80) + (4)\ (.005)(ab)\ (.80)$$

Energy use Yr 4 = 1.112 times energy in Yr 0 or 2.69% per year growth from 1981 to 1985

Using data in Table AE-1
for 1985-1991 growth is 3.36%/yr
1991-2001 growth is 2.84%/yr

For no conservation case, F = 1.0 for all periods and this results in the following electric energy growth rates:

	%/yr
1981-85	3.45
1985-91	4.375
1991-2001	3.70

E.2.2 Population Related Component

E.2.2.1 Public Elementary and Secondary Education

During the 1981/82 school term slightly more than 500 000 students attended public elementary and secondary schools, including approximately 35 000 kindergarden students. This represents approximately 92% of the total estimated population for the 5-17 year age group, with some proportion of the balance attending private schools. Private schools are not included in this grouping and energy consumption by such institutions is included in the unclassified grouping, which is discussed in Part 4.

Assuming that the proportion of the 5-17 year old age group attending the public school system remains relatively constant at 92%, total Provincial enrollment will increase to some 550 000 in 1990 and 675 000 in the year 2000, as shown in Table AE-3.

Total gross floor area in the public school system in 1981, as supplied by the Ministry of Education, was 5.4 million square meters. This total area is equivalent to approximately $10.6 m^2$/student. Based on information obtained from the Ministry of Education a moderate decline in the unit area is forecast. This trend will be realized when under utilized schools are closed as population shifts to the suburbs of the larger urban centers. It is forecast that levels of $10 m^2$/student will be reached by 1990 and maintained thereafter.

The total floor area serviced by B. C. Hydro in the 1981/82 fiscal year is estimated to be approximately 5.0 million square meters or some 93 percent of total B. C. public school floor area. Public schools located outside the B. C. Hydro service area are excluded from the overall forecast. While some population shifts are likely to occur, they are not expected to materially affect the resulting forecast of electric energy requirements served by B. C. Hydro. The total floor space within the B. C. Hydro service area is forecast to reach some 6.2 million square meters in the year 2000.

Actual 1981/82 electric energy consumption in public schools served by the B. C. Hydro system was 332.5 GW.h. It is not anticipated that the average unit consumption figure of some 70 kW.h/m^2 will change over the forecast period. It is anticipated that future reductions in unit consumption due to conservation efforts will be offset by the introduction of additional electronic equipment and the extended use of facilities for evening activities. The proliferation of electric heating throughout the school system is not expected by the Ministry of Education assuming a relationship between electric and gas prices similar to that discussed in Part 2 of this report is realized.

Total electric energy requirements for public schools located within the B. C. Hydro service area are forecast to increase from the fiscal 1981 level of 332.5 GW.h to 342.7 GW.h and 417.7 GW.h in 1990 and 2000 respectively, an average annual increase of 1.2% per annum.

Table AE-3

ELECTRIC ENERGY REQUIREMENTS FOR PUBLIC ELEMENTARY AND SECONDARY EDUCATIONAL FACILITIES[a]

Year	Population 5-17 Age Group (000's)	Total Provincial Enrollment (000's)	Gross Floor Space Total - (000's m^2) -	Gross Floor Space Served By B. C. Hydro - (000's m^2) -	Electric Energy Requirements Within B. C. Hydro Service Area (GW.h)
1981	544.4	503.4	5358	4967	332.5
1985	547.8	506.5	5271	4880	326.7
1990	597.5	552.5	5525	5120	342.7
1995	674.4	623.6	6236	5780	386.9
2000	728.4	673.5	6735	6240	417.7

[a] This forecast accounts for only public educational facilities served by B. C. Hydro and excludes all private schools and schools serviced by West Kootenay Power and Light and other local power systems located within the Province of British Columbia.

Sources: 1981 Population - Statistics Canada
1981 Enrollment - Ministry of Education
1981 Floor Space (total) - Ministry of Education

E.2.2.2 Post-Secondary Educational Facilities

During the 1980/81 winter session, full-time enrollment at all universities and colleges in the Province approached 60 000 students. This number represented 11.0 percent of the 19-29 year old population within the Province, from which it is believed the large majority of all post-secondary students are derived. Over the forecast period, it is anticipated that the proportion of the population attending post-secondary institutions will increase marginally to 12% in 1990 and 13% in the year 2000 due to increasing demand in the market place for technical and professionally trained staff. As a result, total post-secondary enrollments are forecast to increase to 68 200 in 1990 and 77 100 in the year 2000, as shown in Table AE-4.

Data collected from the three Universities and the Department of Education on Community Colleges indicate that the gross floor space per full-time student has increased moderately in recent years. However, this trend is not expected to continue over the longer term due to the limited funds available for expansion and a desire to increase the utilization of existing facilities. For the purposes of this analysis it is assumed that the calculated 1980/81 average of 27 gross m^2 per full-time student will be constant over the forecast period. Total gross floor space is forecast to increase from 1.64 million square meters in 1981 to 2.08 million in the year 2000, an annual increase of slightly less than 1.3 percent.

Total electric energy requirements for post secondary facilities was 243 GW.h in calander 1981, or 148 $kW.h/m^2$, excluding the Triumph accelerator located at the University of British Columbia. In recent years energy conservation programs have been undertaken at most post-secondary institutions. As a result of these programs, unit electric energy consumption has been declining, in some cases as much as thirty percent. However, based on discussions with College and University representatives, it is not expected that any major gains will be made in the future. It is anticipated that improvements achieved in the design of future buildings will be offset by increased space utilization through longer hours of use and the introduction of more electronic equipment for teaching and research applications. In fact, because only minimal additional gains are expected in existing buildings through improved lighting and reduced illumination levels, a moderate increase in average unit consumption may take place.

Based on those results and discussions, it is assumed that the present average unit electric energy consumption of 148 kW.h/m^2 will be representative over the longer term. This results in total electric energy requirements for post secondary institutions of 273 GW.h in 1990 and 310 GW.h in the year 2000, an average annual increase of 1.3% per annum over the forecast period.

As shown in Table AE-4, the estimated University of British Columbia requirements are subtracted from the resulting energy figures for all post secondary institutions. The University of B. C., including Triumph, is a B. C. Hydro bulk customer and, as such, is included in Part 5 of this forecast.

Table AE-4

ELECTRIC ENERGY REQUIREMENTS FOR POST-SECONDARY EDUCATIONAL FACILITIES[a]

Year	Population 19-29 Age Group	Full Time Students	Gross Floor Area	Electric Energy Requirements	
				Total	Excluding U.B.C.
1981	553.2	61.0	1640	243.0	123.0
1985	574.2	66.0	1780	263.7	133.0
1990	568.2	68.2	1840	272.6	138.0
1995	550.7	68.8	1860	275.6	139.5
2000	592.9	77.1	2080	308.2	156.0

[a] U.B.C. is a bulk customer. It's floor space related load in 1981 (i.e. excluding Triumph), was approximately 120 GW.h. The total excluding U.B.C. is assumed to grow at the same rate as the total including U.B.C.

Sources: 1981 Populations - Statistics Canada
1981 Enrollment/Floor area - Universities and Ministry of Education
1981 Energy - Universities and B. C. Hydro

E.2.2.3 Hospitals

In fiscal 1981, approximately 12 300 acute care and 6 300 extended care beds existed in the British Columbia public hospital system. The total floor area during the year reached 1.12 million square meters. The total number of beds, both acute and extended care, is projected to reach 19 200 in fiscal 1982, resulting in a total floor area of some 1.15 million square meters. The gross floor area per acute and extended care bed has averaged 74.3 m^2 and 32.5 m^2 respectively for the last few years. The Ministry of Health expects these relationships to continue over the longer term.

The number of acute care beds in the Province averaged 4.5 per thousand population in 1981, slightly higher than the stated Provincial planning target of 4.25 beds. The Ministry of Health indicates that only one major hospital addition is now under construction, adding 500 acute care beds in 1983. It is not anticipated that any other net increases in the total number of acute beds will result prior to 1985 and that the average number of beds in place will decline to the Provincial target of 4.25 per thousand population by 1990. As shown on Table AE-5, the total number of acute beds is forecast to increase from present levels to some 13 700 in 1990 and to 16 300 by the year 2000. Based on the growth in the total population, gross floor area is forecast to increase to approximately 1.21 million square meters in the year 2000, an average annual increase of 1.5 percent.

The annual increase in the number of extended care beds is forecast to be considerably higher for acute care for two reasons. First, the size of the population over 65 years, which is the primary driving force behind extended care facilities, is forecast to rise at a rate above the general population growth, and second, the Provincial Government objective is to increase the number of beds per thousand from the present level of 22 per thousand population over 65 years of age to between 25 and 30 in the longer term.

Based on Ministry of Health estimates that 300-400 beds will be added each year over the short term, an average of 25 beds per thousand will not be reached by the 1985 objective. It is therefore assumed that the 25 beds per thousand population 65 years and older will be achieved by 1990, and that this level will be maintained over the remainder of the forecast period. As a result, the total number of extended care beds in the public system is forecast to reach 8 600 by 1990 and 10 100 in the year 2000. The total gross floor area for extended care is expected to amount to some 330 000 square meters in the year 2000.

Total Provincial floor space, within the public hospital system for acute and extended care beds, is forecast to rise at an annual rate of 1.7 percent and to reach 1.54 million square meters by the end of the forecast period. In an effort to forecast the electric energy requirements for the hospital sector, two limiting factors must be considered. First, hospital space not serviced by B. C. Hydro must be removed from the forecast and secondly, present limitations in the ability to collect hospital specific information on both floor space and electric energy consumption must be overcome.

In the first instance, hospitals located in the West Kootenay Power & Light service area are identified and an estimate of their total floor space made by applying the average bed areas discussed above to the 1981 bed count[1]. The resulting floor space is subtracted from the Provincial total to determine the space supplied by B. C. Hydro, including indirect supply through the City of New Westminster. A first approximation of the average electrical consumption per square meter serviced is calculated using specific accounts and estimated floor areas for specific hospitals.

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[1] Canadian Hospital Directory, 1980.

Hospitals with abnormally low unit consumptions, based on other information for Canadian hospitals, were eliminated from the calculation. The abnormal figures are a result of present limitations in data gathering techniques which do not ensure all electric accounts are identified.

Based on the above, it is estimated that some 1 million square meters of hospital floor space is actually supplied by B. C. Hydro and that the average electrical consumption is some 184 kW.h/m^2. The results shown in Table AE-5 assume that the proportion of the Provincial total served by B. C. Hydro and the average electric consumption remains constant over the forecast period. It is anticipated that any conservation gains will be offset by increased usage of higher intensity electrical equipment which is the trend in hospitals in other jurisdictions. Electric energy requirements for hospitals served by B. C. Hydro is forecast to increase from the estimated 1981 level of 190 GW.h to some 260 GW.h in the year 2000, an average annual increase of 1.7 percent.

Any increment of the actual hospital load in 1981 not covered as part of this forecast is included in the unclassified group of customers and is forecast to grow at the average growth rate for all other customer groups. The unclassified group of customers is presented in Table 4-1, Part 4.

The overall error results presented would amount to the combination of the difference in the 1981 base energy estimates and the incremental rate of increase resulting between the two forecasting techniques. This net differential, while unknown at this time, is believed to be insignificant when taken in the context of the total energy forecast presented in this report.

Table AE-5

ELECTRIC ENERGY REQUIREMENTS FOR ACUTE AND EXTENDED CARE BED HOSPITALS[a]

Year	Population		Beds		Total Provincial Floor Area	Forecast Coverage[c]	
	Total	>65	Acute	Extended		Floor Area[b]	Electric Energy Requirements
	- (000's) -				(000's) m^2	(000's) m^2	(GW.h)
1981	2 743.8	277.6	12 290	6 280	1 120	1 030	189.7
1985	2 923.4	302.2	12 790	7 480	1 190	1 100	202.6
1990	3 215.2	344.0	13 670	8 600	1 295	1 195	219.9
1995	3 525.2	376.0	14 980	9 400	1 420	1 310	241.0
2000	3 837.8	403.9	16 310	10 100	1 540	1 420	261.3

[a] This forecast includes only a proportion of the beds located in the B. C. Hydro service area due to data collection limitations at the time of writing. The balance of the hospital consumption is included in the general category discussed in Section E.2.2.3.

[b] The proportion of floor space covered by this forecast is assumed to remain constant over the forecast period.

[c] Includes 44 200 m^2 in the City of New Westminster service area, which requires 8.13 GW.h of electrical energy. As the City of New Westminster is an inter-utility customer discussed in Part 6, the 8.13 GW.h has been removed from the base energy figure before the estimated growth rates are applied.

APPENDIX F

ELECTRIC-BULK DATA

Page

F.1 Introduction 250

TABLE AF-1 Bulk Power Accounts Detail - Probable Electric Projected Sales 251

TABLE AF-2 Composition of Bulk Sales Probable Projections - Lower Mainland Division 254

TABLE AF-3 Composition of Bulk Sales Probable Projections - Central Interior Division 255

TABLE AF-4 Composition of Bulk Sales Probable Projections - North Coast Division 256

TABLE AF-5 Composition of Bulk Sales Probable Projections - South Interior Division 257

TABLE AF-6 Composition of Bulk Sales Probable Projections - Vancouver Island Division 258

APPENDIX F

ELECTRIC-BULK DATA

F.1 Introduction

This appendix provides further detail of the bulk electric energy requirements as summarized on TABLE 5-10.

The methodology in forecasting Bulk sales has been significantly changed from previous years. The prior years' forecasts were built up, based on customer specific information, by projecting individual accounts by name for ten years. This year, the 'customer specific' approach has largely been replaced by a 'top down' sectoral analysis approach which negates the requirements for long term individual customer projections. Thus, projections of named customer loads have been limited to the short term.

TABLE AF-1 gives projections by individual bulk customer for three years i.e. through 1984/85.

TABLES AF-2 through AF-6 give the composition of sales for each Division.

B. C. HYDRO

BULK POWER (1800 SERIES) ACCOUNTS DETAIL - PROBABLE ELECTRIC PROJECTED SALES

(No allowance included for any losses)

NAME OF ACCOUNT	SIC[a]	1981/82 Actual		1982/83		1983/84		1984/85	
		Peak MW	Energy GW.h	Peak[c] MW	Energy GW.h	Peak[c] MW	Energy GW.h	Peak[c] MW	Energy GW.h
LOWER MAINLAND DIVISION									
1. Canadian Forest Products Ltd. (Eburne)	2510	7.2	24.0	7	20	7	25	8	35
2. Crown Zellerbach Canada Ltd. (Fraser Mills)	2510	-	-	2	5	6	20	10	35
3. Canadian Forest Products Ltd. (Pacific Veneer)	2520	12.1	61.5	12	55	12	60	12	70
4. MacMillian Bloedel Ltd. (Vancouver Plywood)	2520	13.7	51.9	13	45	13	50	13	55
5. MacMillan Bloedel Ltd. (Powell River)	2710	103.0	548.6	100	540	100	640	105	685
6. Canadian Forest Products Ltd. (Port Mellon)	2710	13.6	85.1	14	80	15	90	16	100
7. Belkin Paperboard Ltd.	2710	15.9	107.0	16	100	17	110	17	115
8. MacMillan Bloedel Ltd. (Island Paper Mill)	2710	3.8	6.7	4	20	6	30	6	30
9. Scott Paper Ltd.	2710	12.8	89.0	13	100	23	120	23	140
10. Rayonier Canada (B. C.) Ltd. (Woodfibre)	2710	13.5	72.0	13	55	13	65	13	70
11. Canada Cement Lafarge Ltd. (Richmond)	3520	8.7	48.4	9	50	9	50	9	50
12. Inland Cement Industries Ltd. (Delta)	3520	16.7	48.9	20	35	20	50	20	60
13. Fibreglas Canada Ltd. (Abbotsford)	3590	10.9	66.3	11	60	12	70	12	75
14. Chevron Canada Ltd.	3650	6.5	48.7	7	50	7	55	8	60
15. Gulf Oil Canada Ltd.	3650	7.4	55.6	7	55	7	55	7	55
16. Imperial Oil Enterprises Ltd.	3650	10.9	81.0	11	80	11	85	11	85
17. Shell Oil Company of Canada Ltd.	3650	6.1	45.8	6	45	6	45	6	45
18. Canadian Occidental Petroleum Ltd.	3780	58.9	389.3	59	385	59	405	60	430
19. ERCO Industries Ltd.	3780	53.4	382.3	53	345	53	365	54	390
20. FMC of Canada Ltd.	3780	32.6	219.4	33	185	33	210	33	230
21. Hooker Chemicals (Nanaimo) Ltd. (Squamish)	3780	10.6	67.2	10	70	10	70	10	70
22. Westshore Terminals (Roberts Bank)	5050	-	-	-	-	6	15	8	20
23 National Harbours Board (Roberts Bank)	5050	-	-	-	-	-	-	4	5
24. Saskatchewan Wheat Pool	5240	5.0	25.0	5	25	5	25	5	25
25. University of British Columbia	8060	27.1	153.3	28	165	28	170	28	170
TOTAL: LOWER MAINLAND DIVISION		450.4	2 677.0	453	2 570	478	2 880	498	3 105
CENTRAL INTERIOR DIVISION									
1. Noranda Mines Limited (Bell Copper)	0590	16.6	121.7	16	110	13	55	16	100
2. Noranda Mines Limited (Granisle)	0590	13.8	97.8	14	30	10	70	5	35
3. Noranda Mines Limited (Boss Mountain)	0590	-	-	4	15	4	25	5	35
4. Placer Development Ltd.	0590	25.4	180.0	19	35	20	150	26	175
5. Gibraltar Mines Ltd.	0590	27.4	198.8	26	195	28	200	28	205
6. Teck Mining Corporation - Bullmoose Property	0610	-	-	2	Trace	6	20	8	40
7. Denison Mines Ltd. (Quintette)	0610	-	-	3	5	14	50	22	105
8. Plateau Mills Ltd.	2510	4.5	18.2	5	15	5	20	5	20
9. Takla Forest Products Ltd.	2510	5.8	21.0	6	20	6	20	6	25
10. Fraser Lake Sawmills	2510	-	-	6	15	6	20	6	25
11. Northwood Pulp and Timber Ltd.	2710	14.3[b]	63.6	14	70	14	70	14	70
12. Intercontinental Pulp Company Ltd.	2710	24.7	155.5	25	170	25	170	25	170
13. Prince George Pulp and Paper Ltd.	2710	30.2	200.0	32	220	35	220	38	230
14. Finlay Forest Industries Ltd.	2710	34.4	190.0	40	275	43	275	48	290
15. British Columbia Forest Products Ltd. (Mackenzie)	2710	15.2[b]	67.5	13	65	13	65	13	65
16. Quesnel River Pulp and Paper (T.M.P.)	2710	33.0	70.5	46	270	50	280	52	285
17. Petro Canada Exploration Inc. (Taylor)	3650	4.9	16.4	5	15	5	20	5	20
18. Texaco Canada Inc. (Boundary Lake)	3650	-	-	5	20	5	30	6	35
19. B. C. Chemicals Ltd.	3780	18.8	117.3	19	130	22	145	25	160
20. B. C. Railway Electrification	5030	-	-	-	-	10	5	10	15
TOTAL: CENTRAL INTERIOR DIVISION		269.0	1 518.3	300	1 675	334	1 910	363	2 105

TABLE AF - 1
PAGE 1 OF 2

B. C. HYDRO

BULK POWER (1800 SERIES) ACCOUNTS DETAIL - PROBABLE ELECTRIC PROJECTED SALES
(No allowance included for any losses)

NAME OF ACCOUNT	SIC[a]	1981/82 Actual Peak MW	1981/82 Actual Energy GW.h	1982/83 Peak[c] MW	1982/83 Energy GW.h	1983/84 Peak[c] MW	1983/84 Energy GW.h	1984/85 Peak[c] MW	1984/85 Energy GW.h
NORTH COAST DIVISION									
1. Equity Silver Mines Ltd.	0590	9.3	62.7	9	65	10	75	12	85
2. Amax of Canada Ltd.	0590	12.1	66.3	11	55	12	65	12	85
3. Northwood Pulp & Timber Ltd. (Houston)	2510	7.3	24.8	7	25	8	30	8	35
4. B. C. Timber (Prince Rupert)	2710	15.5[b]	81.8	15	65	15	95	15	100
5. Eurocan Pulp & Paper Co. Ltd. (Kitimat)	2710	48.3	295.2	55	320	55	370	55	390
6. Prince Rupert Grain Terminal (Ridley Island)	5240	-	-	-	-	5	5	8	25
7. Ridley Island Terminal	5240	-	-	-	-	5	5	10	5
TOTAL: NORTH COAST DIVISION		92.5	530.8	97	530	110	645	120	725
SOUTH INTERIOR DIVISION									
1. Afton Mines Ltd.	0590	17.5	84.2	17	80	17	90	17	100
2. Bethlehem Copper Corporation Ltd.	0590	20.7	157.5	20	45	21	65	21	120
3. Lornex Mining Corporation Ltd.	0590	63.6	387.2	63	465	65	470	68	480
4. Lornex Mining Corporation Ltd. - LL Dam	0590	14.8	63.0	8	55	9	60	11	65
5. Craigmont Mines Ltd.	0590	7.1	49.7	4	20	-	-	-	-
6. Newmont Mines Ltd.	0590	37.9	265.6	38	240	38	255	38	270
7. Highmont Operating Corporation	0590	34.1	222.3	34	240	34	240	34	240
8. Brenda Mines Ltd.	0590	26.4	204.0	26	175	26	185	26	200
9. Noranda Mines Limited (Goldstream)	0590	-	-	2	5	5	25	5	35
10. B. C. Coal Ltd. (Natal II)	0610	33.6	187.9	30	170	36	180	36	180
11. B. C. Coal Ltd. (Green Hills)	0610	-	-	2	5	10	45	10	60
12. Fording Coal Ltd.	0610	20.8	138.0	21	135	23	140	23	150
13. Crowsnest Resources Ltd: Line Creek	0610	-	-	2	10	6	25	6	40
14. Weyerhaeuser Canada Ltd.	2710	19.3	116.6	20	100	22	150	23	160
15. Canada Cement Lafarge Ltd. (Kamloops)	3520	5.7	31.2	6	30	6	30	6	35
TOTAL: SOUTH INTERIOR DIVISION		301.5	1 907.2	293	1 775	318	1 960	324	2 135
VANCOUVER ISLAND DIVISION									
1. Utah Mines Ltd.	0590	60.6	476.4	61	460	61	470	61	470
2. Tahsis Company Ltd. (Sawmill)	2510	6.6	21.7	7	20	7	25	7	30
3. MacMillan Bloedel Limited - Harmac	2710	23.0[b]	131.1	23	140	23	140	23	150
4. MacMillan Bloedel Limited (Port Alberni)	2710	103.1	564.1	100	520	110	540	114	640
5. British Columbia Forest Products Limited (Crofton)	2710	99.2	575.0	112	730	115	740	115	750
6. Crown Zellerbach Canada Limited	2710	134.1	702.2	117	750	134	800	145	870
7. Tahsis Company Ltd. - Gold River	2710	23.2	149.0	8	110	8	30	8	40
8. CanadianOxy Chemicals Ltd. (Harmac)	3780	12.3	65.8	12	75	13	85	14	110
9. Government of Canada - DND Esquimalt	9020	5.3	20.3	6	25	6	25	7	30
TOTAL: VANCOUVER ISLAND DIVISION		467.4	2 705.6	446	2 830	477	2 855	494	3 090
TOTAL - B. C. HYDRO BULK SALES		1 580.8	9 338.9	1 589	9 380	1 717	10 250	1 799	11 160

TABLE AF - 1
PAGE 2 OF 2

NOTES FOR TABLE AF-1

[a] SIC Classification* of Accounts by Major Group Title

0590	Metal Mines
0610	Mineral Fuels
2510	Wood Industries
2520	Wood Industries
2710	Pulp and Paper Mills
3520	Non-Metallic Mineral Products Industries
3590	Non-Metallic Mineral Products Industries
3650	Petroleum and Coal Products Industries
3780	Chemical and Chemical Products Industries
5030	Transportation
5050	Transportation
5240	Storage
8060	Education and Related Services
9020	Federal Administration

* Statistics Canada, "Standard Industrial Classification Manual" revised 1970.

[b] Customer took "AD HOC" power at various times which is included in GW.h consumption. However the "Actual" peak shown is the normal peak assuming no "AD HOC" purchased.

[c] Peaks shown on this table are projected annual peaks and do not necessarily correspond to sectoral peaks shown on Tables 5-10 and AF-2 to AF-6. The sectoral peaks are those estimated to occur at the time of the system coincident peak.

B. C. HYDRO
COMPOSITION OF BULK (1800 SERIES) SALES
PROBABLE PROJECTIONS
LOWER MAINLAND DIVISION

FISCAL YEAR	PULP & PAPER & WOOD MANUFACTURING			CHEMICALS FOR PULP & PAPER			METAL MINING & SMELTING			COAL MINING			PETRO-CHEMICALS			OTHER			TOTAL BULK SALES		
	Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy	
	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total
HISTORIC																					
1971/72	132	771	43.6	108	793	44.9										29	203	11.5	269	1 767	100.0
72/73	126	720	38.3	132	945	50.2										35	217	11.5	293	1 882	100.0
73/74	128	807	38.6	135	1 053	50.3										35	232	11.1	298	2 092	100.0
74/75	139	857	40.2	140	1 044	49.0										36	231	10.8	315	2 132	100.0
75/76	143	713[a]	39.2	139	796	43.7										60	312	17.1	342	1 821	100.0
1976/77	133	839	37.7	148	1 001	44.9										64	388	17.4	345	2 228	100.0
77/78	149	836	35.7	150	1 108	47.3										65	400	17.0	364	2 344	100.0
78/79	154	934	36.4	155	1 171	45.6										83	463	18.0	392	2 568	100.0
79/80	155	987	37.2	155	1 146	43.1										88	524	19.7	398	2 657	100.0
80/81	182	967	35.8	157	1 171	43.4										101	561	20.8	440	2 699	100.0
1981/82	196	1 046[b]	39.1	155	1 058	39.5										99	573	21.4	450	2 677	100.0
Av.Ann.Grwth. 10 Yrs 71/72-81/82		3.1			2.9												10.9			4.2	
PROJECTIONS																					
1982/83	194	1 020	39.7	155	985	38.3										100	565	22.0	449	2 570	100.0
83/84	212	1 210	42.0	155	1 050	36.5										109	620	21.5	476	2 880	100.0
84/85	223	1 335	43.0	157	1 120	36.1										118	650	20.9	498	3 105	100.0
85/86	228	1 450	44.1	157	1 160	35.3										125	675	20.6	510	3 285	100.0
86/87	232	1 470	43.8	161	1 180	35.2										128	705	21.0	521	3 355	100.0
1987/88	233	1 480	43.5	164	1 190	35.0										129	730	21.5	526	3 400	100.0
88/89	236	1 500	43.2	164	1 210	34.9										130	760	21.9	530	3 470	100.0
89/90	239	1 520	42.9	164	1 230	34.8										131	790	22.3	534	3 540	100.0
90/91	242	1 540	42.8	164	1 240	34.5										133	815	22.7	539	3 595	100.0
91/92	245	1 560	42.8	164	1 240	34.0										134	845	23.2	543	3 645	100.0
1992/93	248	1 580	43.0	164	1 240	33.7										135	855	23.3	547	3 675	100.0
Av.Ann.Grwth. 11 Yrs. 81/82-92/93		3.8			1.5												3.7			2.9	

Notes:
[a] Bulk sales abnormally depressed in 1975/76 as a direct result of 3 months pulp and paper strike.
[b] Bulk sales abnormally depressed in 1981/82 as a direct result of 1.5 months pulp and paper strike.

10 September 1982

B. C. HYDRO
COMPOSITION OF BULK (1800 SERIES) SALES
PROBABLE PROJECTIONS
CENTRA'. INTERIOR DIVISION

FISCAL YEAR	PULP & PAPER & WOOD MANUFACTURING			CHEMICALS FOR PULP & PAPER			METAL MINING & SMELTING			COAL MINING			PETRO-CHEMICALS			OTHER			TOTAL BULK SALES		
	Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy	
	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total
HISTORIC																					
1971/72	97	557	69.0	9	64	7.9	44	186	23.1										150	807	100.0
72/73	115	688	60.0	16	84	7.3	67	374	32.7										198	1 146	100.0
73/74	103	726	54.5	16	110	8.2	68	497	37.3										187	1 333	100.0
74/75	121	715	55.7	18	89	7.0	69	479	37.3										208	1 283	100.0
75/76	124	627[a]	51.3	21	101	8.3	69	493	40.4										214	1 221	100.0
1976/77	128	819	59.0	23	148	10.7	71	421	30.3										222	1 388	100.0
77/78	124	831	54.9	22	150	9.9	72	534	35.2										218	1 515	100.0
78/79	138	896	60.9	22	154	10.5	76	421	28.6										236	1 471	100.0
79/80	128	858	57.1	22	146	9.7	77	500	33.2										227	1 504	100.0
80/81	128	827	53.0	22	165	10.6	79	568	36.4										229	1 560	100.0
1981/82	162	786[b]	51.8	19	117	7.7	83	598	39.4							5	17	1.1	269	1 518	100.0
Av. Ann. Grwth. 10 Yrs 71/72-81/82		3.5			6.2			12.4									-			6.5	
PROJECTIONS																					
1982/83	187	1 120	66.9	19	130	7.7	46	385	23.0	5	5	0.3				10	35	2.1	267	1 675	100.0
83/84	197	1 140	59.7	22	145	7.6	75	500	26.2	20	70	3.6				12	55	2.9	326	1 910	100.0
84/85	207	1 180	56.1	25	160	7.6	80	550	26.1	30	145	6.9				21	70	3.3	363	2 105	100.0
85/86	212	1 210	54.1	26	170	7.6	81	585	26.2	35	195	8.7				21	75	3.4	375	2 235	100.0
86/87	215	1 320	56.2	26	175	7.4	76	550	23.4	40	215	9.2				25	90	3.8	382	2 350	100.0
1987/88	217	1 430	57.0	26	185	7.4	76	550	21.9	40	230	9.1				29	115	4.6	388	2 510	100.0
88/89	235	1 560	58.9	26	185	7.0	75	540	20.4	45	250	9.4				29	115	4.3	410	2 650	100.0
89/90	263	1 750	59.0	26	185	6.2	72	530	17.9	50	280	9.4	20	100	3.4	29	120	4.1	460	2 965	100.0
90/91	291	1 940	58.6	26	185	5.6	72	520	15.7	55	330	10.0	30	200	6.0	34	135	4.1	508	3 310	100.0
91/92	317	2 120	58.7	26	185	5.1	72	520	14.4	60	350	9.7	40	300	8.3	34	135	3.8	549	3 610	100.0
1992/93	345	2 310	60.2	26	185	4.8	72	520	13.6	65	380	9.9	40	300	7.8	34	140	3.7	582	3 835	100.0
Av. Ann. Grwth. 11 Yrs. 81/82-92/93		10.3			4.3			-			-			-			21.1			8.8	

Notes: [a] Bulk sales abnormally depressed in 1975/76 as a direct result of 3 months pulp and paper strike.
[b] Bulk sales abnormally depressed in 1981/82 as a direct result of 1.5 months pulp and paper strike.

10 September 1982

TABLE AF - 4

B. C. HYDRO
COMPOSITION OF BULK (1800 SERIES) SALES
PROBABLE PROJECTIONS
NORTH COAST DIVISION

FISCAL YEAR	PULP & PAPER & WOOD MANUFACTURING			CHEMICALS FOR PULP & PAPER			METAL MINING & SMELTING			COAL MINING			PETRO-CHEMICALS			OTHER			TOTAL BULK SALES		
	Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy	
	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total
HISTORIC																					
1971/72	58	277	88.8				7	35	11.2										65	312	100.0
72/73	61	319	98.8				6	4	1.2										67	323	100.0
73/74	61	392	100.0				-	-	-										61	392	100.0
74/75	62	381	100.0				-	-	-										62	381	100.0
75/76	61	301[a]	100.0				-	-	-										61	301	100.0
1976/77	59	374	100.0				-	-	-										59	374	100.0
77/78	56	364	100.0				-	-	-										56	364	100.0
78/79	91	499	100.0				-	-	-										91	499	100.0
79/80	59	391	100.0				-	-	-										59	391	100.0
80/81	70	443	93.1				8	33	6.9										78	476	100.0
1981/82	71	402[b]	75.7				22	129	24.3										93	531	100.0
Av.Ann.Grwth. 10 Yrs 71/72-81/82		3.8						13.9												5.5	
PROJECTIONS																					
1982/83	77	410	77.4				20	120	22.6										97	530	100.0
83/84	78	495	76.7				22	140	21.7							5	10	1.6	105	645	100.0
84/85	78	525	72.4				24	170	23.5							18	30	4.1	120	725	100.0
85/86	78	535	72.3				24	170	23.0							18	35	4.7	120	740	100.0
86/87	78	535	42.0				24	170	13.3				100	530	41.6	19	40	3.1	221	1 275	100.0
1987/88	78	535	33.9				24	170	10.7				117	820	51.9	20	55	3.5	239	1 580	100.0
88/89	78	535	30.9				24	170	9.8				133	970	56.1	20	55	3.2	255	1 730	100.0
89/90	81	545	29.8				24	170	9.3				140	1 050	57.4	22	65	3.5	267	1 830	100.0
90/91	84	565	29.3				24	170	8.8				145	1 120	58.0	23	75	3.9	276	1 930	100.0
91/92	86	585	27.2				24	170	7.9				181	1 320	61.4	23	75	3.5	314	2 150	100.0
1992/93	89	605	25.9				24	170	7.3				194	1 480	63.4	23	80	3.4	330	2 335	100.0
Av.Ann.Grwth. 11 Yrs. 81/82-92/93		3.8						2.5						-			-			14.4	

Notes:
[a] Bulk sales abnormally depressed in 1975/76 as a direct result of 3 months pulp and paper strike.
[b] Bulk sales abnormally depressed in 1981/82 as a direct result of 1.5 months pulp and paper strike.

10 September 1982

TABLE AF - 4

B. C. HYDRO
COMPOSITION OF BULK (1800 SERIES) SALES
PROBABLE PROJECTIONS
SOUTH INTERIOR DIVISION

FISCAL YEAR	PULP & PAPER & WOOD MANUFACTURING			CHEMICALS FOR PULP & PAPER			METAL MINING[c] & SMELTING			COAL MINING			PETRO-CHEMICALS			OTHER			TOTAL BULK SALES		
	Peak MW	Energy GW.h	Energy % of Total	Peak MW	Energy GW.h	Energy % of Total	Peak MW	Energy GW.h	Energy % of Total	Peak MW	Energy GW.h	Energy % of Total	Peak MW	Energy GW.h	Energy % of Total	Peak MW	Energy GW.h	Energy % of Total	Peak MW	Energy GW.h	Energy % of Total
HISTORIC																					
1971/72	15	81	14.2				63	369	64.7	33	120	21.1							111	570	100.0
72/73	17	109	10.0				131	803	73.4	33	182	16.6							181	1,094	100.0
73/74	18	115	9.6				132	909	75.4	33	181	15.0							183	1,205	100.0
74/75	19	120	10.0				127	886	73.5	35	199	16.5							181	1,205	100.0
75/76	17	104[a]	9.1				128	836	72.6	35	211	18.3							180	1,151	100.0
1976/77	16	129	10.2				133	966	76.7	36	165	13.1							185	1,260	100.0
77/78	16	115	8.6				150	997	74.5	42	227	16.9							208	1,339	100.0
78/79	20	112	7.5				155	1,105	74.6	44	265	17.9							219	1,482	100.0
79/80	20	143	9.3				159	1,137	73.5	47	259	16.7				4	8	0.5	230	1,547	100.0
80/81	20	142	8.6				190	1,193	71.8	50	302	18.2				5	24	1.4	265	1,661	100.0
1981/82	19	117[b]	6.1				222	1,433	75.2	55	326	17.1				6	31	1.6	302	1,907	100.0
Av.Ann.Grwth. 10 Yrs 71/72-81/82		3.7						14.5			10.5						-			12.8	
PROJECTIONS																					
1982/83	20	100	5.6				190	1,325	74.7	60	320	18.0				6	30	1.7	276	1,775	100.0
83/84	22	150	7.7				215	1,390	70.9	75	390	19.9				6	30	1.5	318	1,960	100.0
84/85	23	160	7.5				220	1,510	70.7	75	430	20.2				6	35	1.6	324	2,135	100.0
85/86	23	160	6.9				230	1,645	71.4	80	465	20.2				6	35	1.5	339	2,305	100.0
86/87	23	160	6.2				245	1,850	72.1	90	520	20.3				6	35	1.4	364	2,565	100.0
1987/88	23	160	5.7				255	2,005	71.4	105	610	21.7				6	35	1.2	389	2,810	100.0
88/89	23	160	5.5				263	2,060	70.4	115	670	22.9				6	35	1.2	407	2,925	100.0
89/90	23	160	5.3				271	2,120	69.6	125	730	24.0				6	35	1.1	425	3,045	100.0
90/91	23	160	4.7				309	2,410	70.6	140	810	23.7				6	35	1.0	478	3,415	100.0
91/92	23	160	4.5				316	2,460	69.8	150	870	24.7				6	35	1.0	495	3,525	100.0
1992/93	23	160	4.5				316	2,460	68.8	160	920	25.7				6	35	1.0	505	3,575	100.0
Av.Ann.Grwth. 11 Yrs. 81/82-92/93		2.9						5.0			9.9						1.1			5.9	

Notes:

[a] Bulk sales abnormally depressed in 1975/76 as a direct result of 3 months pulp and paper strike.

[b] Bulk sales abnormally depressed in 1981/82 as a direct result of 1.5 months pulp and paper strike.

[c] Includes Cominco Ltd. sales requirements starting 1986/87:

	Peak	Energy
1986/87	-	70
1987/88	-	160
1988/89	-	160
1989/90	-	160
1990/91	-	160
1991/92	-	160
1992/93	-	160

10 September 1982

B. C. HYDRO
COMPOSITION OF BULK (1800 SERIES) SALES
PROBABLE PROJECTIONS
VANCOUVER ISLAND DIVISION

	PULP & PAPER & WOOD MANUFACTURING			CHEMICALS FOR PULP & PAPER			METAL MINING & SMELTING			COAL MINING			PETRO-CHEMICALS			OTHER			TOTAL BULK SALES		
FISCAL YEAR	Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy		Peak	Energy	
	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total	MW	GW.h	% of Total
HISTORIC																					
1971/72	303	2 147	89.3	13	91	3.8	44	106	4.4							10	60	2.5	370	2 404	100.0
72/73	306	2 163	82.5	13	105	4.0	43	286	10.9							10	67	2.6	372	2 621	100.0
73/74	311	2 238	81.3	13	91	3.3	53	353	12.8							11	72	2.6	388	2 754	100.0
74/75	321	2 212	81.5	13	104	3.8	55	330	12.2							11	67	2.5	400	2 713	100.0
75/76	319	1 782	77.0	13	78	3.4	59	386	16.7							10	68	2.9	401	2 314[a]	100.0
1976/77	321	2 345	80.4	13	105	3.6	56	399	13.7							11	67	2.3	401	2 916	100.0
77/78	326	2 344	80.3	13	91	3.1	58	416	14.3							11	66	2.3	408	2 917	100.0
78/79	345	2 521	81.0	12	94	3.0	59	437	14.0							10	61	2.0	426	3 113	100.0
79/80	363	2 519	80.8	12	80	2.5	58	448	14.4							16	71	2.3	449	3 118	100.0
80/81	356	2 593	81.0	12	91	2.8	60	470	14.7							14	47	1.5	442	3 201	100.0
1981/82	389	2 143	79.2	12	66	2.4	61	477	17.6							5	20	0.8	467	2 706[b]	100.0
Av.Ann.Grwth. 10 Yrs 71/72-81/82		-			-			16.2									-			1.2	
PROJECTIONS																					
1982/83	367	2 270	80.2	12	75	2.6	61	460	16.3							6	25	0.9	446	2 830	100.0
83/84	397	2 275	79.7	13	85	3.0	61	470	16.4							6	25	0.9	477	2 855	100.0
84/85	412	2 480	80.2	14	110	3.6	61	470	15.2							7	30	1.0	494	3 090	100.0
85/86	428	2 585	79.9	15	120	3.7	65	500	15.5							7	30	0.9	515	3 235	100.0
86/87	433	2 655	80.2	16	125	3.8	65	500	15.1							7	30	0.9	521	3 310	100.0
1987/88	433	2 735	79.5	17	135	3.9	70	535	15.6							8	35	1.0	528	3 440	100.0
88/89	438	2 835	80.0	17	135	3.8	70	540	15.2							8	35	1.0	533	3 545	100.0
89/90	448	2 915	80.3	17	135	3.7	70	540	14.9							8	40	1.1	543	3 630	100.0
90/91	458	2 985	80.5	17	135	3.6	70	540	14.6							14	50	1.3	559	3 710	100.0
91/92	468	3 065	80.8	17	135	3.6	70	540	14.2							14	55	1.4	569	3 795	100.0
1992/93	478	3 135	80.9	17	135	3.5	70	540	13.9							15	65	1.7	580	3 875	100.0
Av.Ann.Grwth. 11 Yrs. 81/82-92/93		3.5			6.7			1.1									11.3			3.3	

Notes:
[a] Bulk sales abnormally depressed in 1975/76 as a direct result of 3 months pulp and paper strike.
[b] Bulk sales abnormally depressed in 1981/82 as a direct result of 1.5 months pulp and paper strike.

10 September 1982

APPENDIX G

ELECTRIC DIVISIONAL SUMMARIES

Page

G.1 Introduction 260

TABLE AG-1 Probable Projection of Electric Sales - Lower Mainland Division 261

TABLE AG-2 Probable Projection of Electric Sales - Central Interior Division 262

TABLE AG-3 Probable Projection of Electric Sales - North Coast Division 263

TABLE AG-4 Probable Projection of Electric Sales - South Interior Division 264

TABLE AG-5 Probable Projection of Electric Sales - Vancouver Island Division 265

TABLE AG-6 Historic and Probable Projections - Electric Sales and Average Customers - Lower Mainland Division 266

TABLE AG-7 Historic and Probable Projections - Electric Sales and Average Customers - Central Interior Division 267

TABLE AG-8 Historic and Probable Projections - Electric Sales and Average Customers - North Coast Division 268

TABLE AG-9 Historic and Probable Projections - Electric Sales and Average Customers - South Interior Division 269

TABLE AG-10 Historic and Probable Projections - Electric Sales and Average Customers - Vancouver Island Division 270

APPENDIX G

ELECTRIC DIVISIONAL SUMMARIES

G.1 Introduction

This appendix provides Divisional breakdowns for TABLES 6-2 and 6-3.

TABLES AG-1 through AG-5 provide Division details of the forecast to 1992/93 for accounts, average use per account and sales by category.

TABLES AG-6 through AG-10 provide Division details of historical and forecast sales, average customers and categorical percentage of sales over a 20-year period.

BCHydro

PROBABLE PROJECTION OF ELECTRIC POWER SALES

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

Division Lower Mainland Location Total All Districts Type Probable Date 10 September 1982

DESCRIPTION	ACTUAL 1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
	FISCAL YEARS											
		PROJECTION										
RESIDENTIAL												
1. **NON-HEATING**												
ACCOUNTS AT YEAR END	481 703	487 500	494 800	502 400	510 300	518 800	527 600	536 800	546 300	556 100	566 200	576 300
AVERAGE ACCOUNTS FOR YEAR	477 383	484 600	491 200	498 600	506 400	514 600	523 200	532 200	541 600	551 200	561 200	571 300
ANNUAL USE PER ACCOUNT — KWH	7 615	7 660	7 685	7 700	7 710	7 720	7 730	7 735	7 740	7 740	7 740	7 745
SALES — GWH	3 635.2	3 712	3 775	3 839	3 904	3 973	4 044	4 117	4 192	4 266	4 344	4 425
2. **HEATING**												
ACCOUNTS AT YEAR END	42 959	48 600	54 700	60 600	66 400	72 100	77 700	83 300	88 700	93 900	99 400	104 900
AVERAGE ACCOUNTS FOR YEAR	40 409	45 800	51 600	57 700	63 500	69 200	74 900	80 500	86 000	91 300	96 600	102 100
ANNUAL USE PER ACCOUNT — KWH	15 163	14 880	14 595	14 375	14 165	13 980	13 790	13 635	13 495	13 370	13 250	13 140
SALES — GWH	612.7	682	753	829	899	967	1 033	1 098	1 161	1 221	1 280	1 342
TOTAL RESIDENTIAL												
ACCOUNTS AT YEAR END	524 662	536 100	549 500	563 000	576 700	590 900	605 300	620 100	635 000	650 000	665 600	681 200
AVERAGE ACCOUNTS FOR YEAR	517 792	530 400	542 800	556 300	569 900	583 800	598 100	612 700	627 600	642 500	657 800	673 400
ANNUAL USE PER ACCOUNT — KWH	8 203	8 285	8 340	8 390	8 430	8 460	8 490	8 510	8 530	8 540	8 550	8 565
SALES — GWH	4 247.9	4 394	4 528	4 668	4 803	4 940	5 077	5 215	5 353	5 487	5 624	5 767
GENERAL												
1. **GENERAL — UNDER 35 KW**												
ACCOUNTS AT YEAR END	63 969	64 490	65 160	65 860	66 630	67 400	68 160	68 910	69 720	70 530	71 320	72 060
AVERAGE ACCOUNTS FOR YEAR	63 454	64 230	64 825	65 510	66 245	67 015	67 780	68 535	69 315	70 125	70 925	71 690
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	1 259.0	1 250	1 274	1 300	1 328	1 356	1 385	1 415	1 445	1 475	1 506	1 537
2. **GENERAL — 35 KW AND OVER**												
ACCOUNTS AT YEAR END	7 075	7 300	7 600	8 030	8 450	8 870	9 310	9 770	10 230	10 680	11 120	11 560
AVERAGE ACCOUNTS FOR YEAR	6 774	7 185	7 450	7 815	8 240	8 660	9 090	9 540	10 000	10 455	10 900	11 340
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	4 364.3	4 335	4 587	4 777	4 872	5 019	5 182	5 354	5 534	5 729	5 913	6 080
TOTAL GENERAL												
ACCOUNTS AT YEAR END	71 044	71 790	72 760	73 890	75 080	76 270	77 470	78 680	79 950	81 210	82 440	83 620
AVERAGE ACCOUNTS FOR YEAR	70 228	71 415	72 275	73 325	74 485	75 675	76 870	78 075	79 315	80 580	81 825	83 030
SALES — GWH	5 623.3	5 585	5 861	6 077	6 200	6 375	6 567	6 769	6 979	7 204	7 419	7 617
IRRIGATION												
ACCOUNTS AT YEAR END	319	336	349	368	391	408	424	439	455	471	487	504
AVERAGE ACCOUNTS FOR YEAR	308	325	342	357	377	398	415	432	447	463	479	496
SALES — GWH	2.0	3	4	5	5	5	6	6	6	7	7	8
STREET LIGHTING												
SALES — GWH	132.5	135	140	144	147	151	155	160	165	169	174	179
BULK POWER												
ACCOUNTS AT YEAR END	22	23	24	25	26	26	26	26	26	26	26	26
AVERAGE ACCOUNTS FOR YEAR	22	23	24	25	26	26	26	26	26	26	26	26
SALES — GWH	2 677.0	2 570	2 880	3 105	3 285	3 355	3 400	3 470	3 540	3 595	3 645	3 675
INTER-UTILITY												
ACCOUNTS AT YEAR END	1	1	1	1	1	1	1	1	1	1	1	1
AVERAGE ACCOUNTS FOR YEAR	1	1	1	1	1	1	1	1	1	1	1	1
SALES — GWH	227.4	232	242	253	265	277	289	301	313	325	338	352
EXPORT TO U.S.A.												
ACCOUNTS AT YEAR END	1	1	1	1	1	1	1	1	1	1	1	1
AVERAGE ACCOUNTS FOR YEAR	1	1	1	1	1	1	1	1	1	1	1	1
SALES — GWH	12.5	13	14	15	16	17	18	19	20	21	22	24
B.C. HYDRO USE												
ACCOUNTS AT YEAR END	505	517	529	538	546	555	564	570	575	580	585	590
AVERAGE ACCOUNTS FOR YEAR	499	509	521	531	540	549	558	567	573	578	583	588
SALES — GWH	60.8	64	68	71	73	74	76	77	79	81	83	85
TOTAL FORECAST SALES												
ACCOUNTS AT YEAR END	596 554	608 768	623 164	637 823	652 745	668 161	683 786	699 817	716 008	732 289	749 140	765 942
AVERAGE ACCOUNTS FOR YEAR	588 851	602 674	615 964	630 540	645 330	660 450	675 971	691 802	707 963	724 149	740 715	757 542
SALES — GWH	12 983.4	12 996	13 737	14 338	14 794	15 194	15 588	16 017	16 455	16 889	17 312	17 707

TABLE AG-2

B.C.Hydro

PROBABLE PROJECTION OF ELECTRIC POWER SALES

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

Division Central Interior   Location Total All Districts   Type Probable   Date 10 September 1982

DESCRIPTION	FISCAL YEARS											
		PROJECTION										
	ACTUAL 1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
RESIDENTIAL												
NON-HEATING												
ACCOUNTS AT YEAR END	70 070	71 500	73 900	76 000	78 500	81 100	83 700	86 400	89 100	92 000	94 900	97 800
AVERAGE ACCOUNTS FOR YEAR	69 278	70 800	72 700	75 000	77 300	79 800	82 400	85 100	87 800	90 600	93 500	96 400
ANNUAL USE PER ACCOUNT — KWH	8 941	8 960	8 965	8 960	8 950	8 935	8 930	8 925	8 915	8 895	8 875	8 855
SALES — GWH	619.4	634	652	672	692	713	736	760	783	806	830	854
HEATING												
ACCOUNTS AT YEAR END	9 867	10 400	10 900	11 600	12 400	13 200	14 100	15 000	15 900	16 800	17 800	18 800
AVERAGE ACCOUNTS FOR YEAR	9 488	10 100	10 700	11 200	12 000	12 800	13 700	14 500	15 400	16 300	17 300	18 300
ANNUAL USE PER ACCOUNT — KWH	18 303	18 115	17 905	17 685	17 450	17 220	17 020	16 835	16 655	16 480	16 305	16 135
SALES — GWH	173.7	183	192	198	209	220	233	244	256	269	282	295
TOTAL RESIDENTIAL												
ACCOUNTS AT YEAR END	79 937	81 900	84 800	87 600	90 900	94 300	97 800	101 400	105 000	108 800	112 700	116 600
AVERAGE ACCOUNTS FOR YEAR	78 766	80 900	83 400	86 200	89 300	92 600	96 100	99 600	103 200	106 900	110 800	114 700
ANNUAL USE PER ACCOUNT — KWH	10 068	10 100	10 120	10 095	10 090	10 075	10 085	10 080	10 070	10 055	10 035	10 015
SALES — GWH	793.1	817	844	870	901	933	969	1 004	1 039	1 075	1 112	1 149
GENERAL												
GENERAL — UNDER 35 KW												
ACCOUNTS AT YEAR END	10 787	10 940	11 190	11 410	11 660	11 920	12 190	12 490	12 780	13 080	13 390	13 690
AVERAGE ACCOUNTS FOR YEAR	10 664	10 865	11 065	11 300	11 535	11 790	12 055	12 340	12 635	12 930	13 235	13 540
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	234.8	235	243	252	260	268	276	285	294	304	314	324
GENERAL — 35 KW AND OVER												
ACCOUNTS AT YEAR END	1 436	1 490	1 560	1 650	1 750	1 850	1 960	2 060	2 170	2 270	2 370	2 480
AVERAGE ACCOUNTS FOR YEAR	1 383	1 465	1 525	1 605	1 700	1 800	1 905	2 010	2 115	2 220	2 320	2 425
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	954.3	905	927	1 001	1 074	1 130	1 167	1 208	1 256	1 303	1 358	1 415
TOTAL GENERAL												
ACCOUNTS AT YEAR END	12 223	12 430	12 750	13 060	13 410	13 770	14 150	14 550	14 950	15 350	15 760	16 170
AVERAGE ACCOUNTS FOR YEAR	12 047	12 330	12 590	12 905	13 235	13 590	13 960	14 350	14 750	15 150	15 555	15 965
SALES — GWH	1 189.1	1 140	1 170	1 253	1 334	1 398	1 443	1 493	1 550	1 607	1 672	1 739
IRRIGATION												
ACCOUNTS AT YEAR END	182	192	202	213	222	232	241	251	262	273	284	296
AVERAGE ACCOUNTS FOR YEAR	175	185	196	207	217	225	235	246	257	268	279	290
SALES — GWH	4.1	4	5	5	5	6	6	6	7	7	8	8
STREET LIGHTING												
SALES — GWH	19.6	20	21	21	22	22	23	24	25	25	26	27
BULK POWER												
ACCOUNTS AT YEAR END	14	19	20	20	20	20	20	20	22	22	23	23
AVERAGE ACCOUNTS FOR YEAR	14	19	20	20	20	20	20	20	22	22	23	23
SALES — GWH	1 518.3	1 675	1 910	2 105	2 235	2 350	2 510	2 650	2 965	3 310	3 610	3 835
INTER-UTILITY												
ACCOUNTS AT YEAR END	6	6	6	6	6	6	7	7	7	7	7	7
AVERAGE ACCOUNTS FOR YEAR	6	6	6	6	6	6	7	7	7	7	7	7
SALES — GWH	4.8	5	5	5	5	6	6	6	6	7	7	7
EXPORT TO U.S.A.												
ACCOUNTS AT YEAR END	-	-	-	-	-	-	-	-	-	-	-	-
AVERAGE ACCOUNTS FOR YEAR	-	-	-	-	-	-	-	-	-	-	-	-
SALES — GWH	-	-	-	-	-	-	-	-	-	-	-	-
B.C. HYDRO USE												
ACCOUNTS AT YEAR END	133	132	133	133	134	134	134	134	135	136	137	138
AVERAGE ACCOUNTS FOR YEAR	126	131	131	132	133	134	134	134	135	136	137	138
SALES — GWH	5.8	6	6	6	6	6	7	7	7	7	8	8
TOTAL FORECAST SALES												
ACCOUNTS AT YEAR END	92 495	94 679	97 911	101 032	104 692	108 462	112 352	116 362	120 376	124 588	128 911	133 234
AVERAGE ACCOUNTS FOR YEAR	91 134	93 571	96 343	99 470	102 911	106 575	110 456	114 357	118 371	122 483	126 801	131 123
SALES — GWH	3 534.8	3 667	3 961	4 265	4 508	4 721	4 964	5 190	5 599	6 038	6 443	6 773

TABLE AG-3

B.C.Hydro

PROBABLE PROJECTION OF ELECTRIC POWER SALES

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

Division North Coast

Location Total All Districts

Type Probable

Date 10 September 1982

DESCRIPTION	ACTUAL 1981/82	PROJECTION 1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
RESIDENTIAL												
1. **NON-HEATING**												
ACCOUNTS AT YEAR END	20 477	20 900	21 500	22 100	22 900	23 700	24 500	25 300	26 100	27 000	27 900	28 800
AVERAGE ACCOUNTS FOR YEAR	20 243	20 690	21 200	21 800	22 500	23 300	24 100	24 900	25 700	26 600	27 500	28 400
ANNUAL USE PER ACCOUNT — KWH	10 168	10 200	10 215	10 220	10 205	10 190	10 155	10 115	10 070	10 005	9 935	9 860
SALES — GWH	205.8	211	217	223	230	237	245	252	259	266	273	280
2. **HEATING**												
ACCOUNTS AT YEAR END	6 663	7 000	7 400	7 900	8 400	8 900	9 400	9 900	10 400	10 900	11 500	12 100
AVERAGE ACCOUNTS FOR YEAR	6 357	6 830	7 200	7 700	8 200	8 700	9 200	9 700	10 200	10 600	11 200	11 800
ANNUAL USE PER ACCOUNT — KWH	19 161	18 890	18 600	18 300	18 000	17 705	17 495	17 290	17 080	16 865	16 645	16 425
SALES — GWH	121.8	129	134	141	148	154	161	168	174	179	186	194
TOTAL RESIDENTIAL												
ACCOUNTS AT YEAR END	27 140	27 900	28 900	30 000	31 300	32 600	33 900	35 200	36 500	37 900	39 400	40 900
AVERAGE ACCOUNTS FOR YEAR	26 600	27 520	28 400	29 500	30 700	32 000	33 300	34 600	35 900	37 200	38 700	40 200
ANNUAL USE PER ACCOUNT — KWH	12 317	12 355	12 360	12 340	12 315	12 220	12 190	12 140	12 060	11 960	11 860	11 790
SALES — GWH	327.6	340	351	364	378	391	406	420	433	445	459	474
GENERAL												
1. **GENERAL — UNDER 35 KW**												
ACCOUNTS AT YEAR END	4 461	4 520	4 610	4 710	4 840	4 960	5 080	5 200	5 320	5 450	5 580	5 710
AVERAGE ACCOUNTS FOR YEAR	4 413	4 490	4 565	4 660	4 775	4 900	5 020	5 140	5 260	5 385	5 515	5 645
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	94.5	96	98	101	104	108	111	115	119	123	127	131
2. **GENERAL — 35 KW AND OVER**												
ACCOUNTS AT YEAR END	520	540	570	600	640	680	720	760	800	850	900	950
AVERAGE ACCOUNTS FOR YEAR	486	530	555	585	620	660	700	740	780	825	875	925
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	246.6	257	275	294	321	347	364	380	396	413	431	450
TOTAL GENERAL												
ACCOUNTS AT YEAR END	4 981	5 060	5 180	5 310	5 480	5 640	5 800	5 960	6 120	6 300	6 480	6 660
AVERAGE ACCOUNTS FOR YEAR	4 899	5 020	5 120	5 245	5 395	5 560	5 720	5 880	6 040	6 210	6 390	6 570
SALES — GWH	341.1	353	373	395	425	455	475	495	515	536	558	581
IRRIGATION												
ACCOUNTS AT YEAR END	1	1	1	3	3	5	5	6	6	7	7	8
AVERAGE ACCOUNTS FOR YEAR	1	1	1	1	3	3	5	6	6	7	7	8
SALES — GWH	T	T	T	T	T	T	T	T	T	T	T	T
STREET LIGHTING												
SALES — GWH	7.9	8	8	8	8	9	9	9	9	10	10	10
BULK POWER												
ACCOUNTS AT YEAR END	5	5	7	7	7	9	9	10	10	10	11	11
AVERAGE ACCOUNTS FOR YEAR	5	5	7	7	7	9	9	10	10	10	11	11
SALES — GWH	530.8	530	645	725	740	1 275	1 580	1 730	1 830	1 930	2 150	2 335
INTER-UTILITY												
ACCOUNTS AT YEAR END	-	-	-	-	-	-	-	-	-	-	-	-
AVERAGE ACCOUNTS FOR YEAR	-	-	-	-	-	-	-	-	-	-	-	-
SALES — GWH	-	-	-	-	-	-	-	-	-	-	-	-
EXPORT TO U.S.A.												
ACCOUNTS AT YEAR END	1	1	1	1	1	1	1	1	1	1	1	1
AVERAGE ACCOUNTS FOR YEAR	1	1	1	1	1	1	1	1	1	1	1	1
SALES — GWH	0.3	T	T	T	T	T	T	T	T	T	T	T
B.C. HYDRO USE												
ACCOUNTS AT YEAR END	32	32	33	33	34	34	34	35	35	36	36	37
AVERAGE ACCOUNTS FOR YEAR	33	31	32	33	33	34	34	35	35	36	36	37
SALES — GWH	3.0	3	3	3	3	3	3	3	4	4	4	4
TOTAL FORECAST SALES												
ACCOUNTS AT YEAR END	32 160	32 999	34 122	35 354	36 825	38 289	39 749	41 212	42 672	44 254	45 935	47 617
AVERAGE ACCOUNTS FOR YEAR	31 539	32 578	33 561	34 787	36 139	37 607	39 069	40 532	41 992	43 464	45 145	46 827
SALES — GWH	1 210.7	1 234	1 380	1 495	1 554	2 133	2 473	2 657	2 791	2 925	3 181	3 404

T - Trace

B.C.Hydro

PROBABLE PROJECTION OF ELECTRIC POWER SALES

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

Division South Interior
Location Total All Districts
Type Probable
Date 10 September 1982

DESCRIPTION	FISCAL YEARS											
	ACTUAL	PROJECTION										
	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
RESIDENTIAL												
1. **NON-HEATING**												
ACCOUNTS AT YEAR END	89 419	91 500	94 000	96 700	99 600	102 600	105 600	108 600	111 600	114 800	118 000	121 200
AVERAGE ACCOUNTS FOR YEAR	88 060	90 460	92 750	95 400	98 100	101 100	104 100	107 100	110 100	113 200	116 400	119 600
ANNUAL USE PER ACCOUNT — KWH	8 528	8 545	8 560	8 565	8 560	8 560	8 545	8 535	8 520	8 495	8 475	8 460
SALES — GWH	751.0	773	794	817	840	865	890	914	938	962	986	1 012
2. **HEATING**												
ACCOUNTS AT YEAR END	20 984	22 100	23 200	24 400	25 700	27 100	28 500	30 000	31 500	33 100	34 800	36 500
AVERAGE ACCOUNTS FOR YEAR	20 047	21 540	22 650	23 800	25 100	26 400	27 800	29 300	30 800	32 300	34 000	35 700
ANNUAL USE PER ACCOUNT — KWH	16 497	16 470	16 440	16 400	16 360	16 325	16 230	16 140	16 050	15 950	15 850	15 755
SALES — GWH	330.7	355	372	390	411	431	451	473	494	515	539	562
TOTAL RESIDENTIAL												
ACCOUNTS AT YEAR END	110 403	113 600	117 200	121 100	125 300	129 700	134 100	138 600	143 100	147 900	152 800	157 700
AVERAGE ACCOUNTS FOR YEAR	108 107	112 000	115 400	119 200	123 200	127 500	131 900	136 400	140 900	145 500	150 400	155 300
ANNUAL USE PER ACCOUNT — KWH	10 005	10 070	10 105	10 130	10 155	10 165	10 170	10 170	10 165	10 150	10 140	10 135
SALES — GWH	1 081.7	1 128	1 166	1 207	1 251	1 296	1 341	1 387	1 432	1 477	1 525	1 574
GENERAL												
1. **GENERAL — UNDER 35 KW**												
ACCOUNTS AT YEAR END	14 503	14 760	15 040	15 320	15 650	15 970	16 300	16 640	16 990	17 350	17 720	18 090
AVERAGE ACCOUNTS FOR YEAR	14 450	14 630	14 900	15 180	15 485	15 810	16 135	16 470	16 815	17 170	17 535	17 905
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	269.0	272	278	285	294	304	313	323	333	343	354	365
2. **GENERAL — 35 KW AND OVER**												
ACCOUNTS AT YEAR END	1 883	1 950	2 040	2 150	2 280	2 400	2 530	2 660	2 780	2 910	3 040	3 160
AVERAGE ACCOUNTS FOR YEAR	1 777	1 915	1 995	2 095	2 215	2 340	2 465	2 595	2 720	2 845	2 975	3 100
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	809.8	853	845	866	905	945	987	1 027	1 069	1 112	1 157	1 202
TOTAL GENERAL												
ACCOUNTS AT YEAR END	16 386	16 710	17 080	17 470	17 930	18 370	18 830	19 300	19 770	20 260	20 760	21 250
AVERAGE ACCOUNTS FOR YEAR	16 227	16 545	16 895	17 275	17 700	18 150	18 600	19 065	19 535	20 015	20 510	21 005
SALES — GWH	1 078.8	1 125	1 123	1 151	1 199	1 249	1 300	1 350	1 402	1 455	1 511	1 567
IRRIGATION												
ACCOUNTS AT YEAR END	1 402	1 437	1 493	1 545	1 602	1 658	1 715	1 773	1 834	1 896	1 961	2 029
AVERAGE ACCOUNTS FOR YEAR	1 358	1 415	1 461	1 516	1 571	1 627	1 684	1 744	1 804	1 865	1 929	1 995
SALES — GWH	33.1	37	38	39	41	43	45	47	49	52	55	58
STREET LIGHTING												
SALES — GWH	25.3	26	26	27	28	29	30	31	32	33	34	35
BULK POWER [a]												
ACCOUNTS AT YEAR END	12	15	14	14	14	15	16	16	16	18	18	18
AVERAGE ACCOUNTS FOR YEAR	12	15	14	14	14	15	16	16	16	18	18	18
SALES — GWH	1 907.2	1 775	1 960	2 135	2 305	2 565	2 810	2 925	3 045	3 415	3 525	3 575
INTER-UTILITY [b]												
ACCOUNTS AT YEAR END	1	1	1	1	1	1	1	1	1	1	1	1
AVERAGE ACCOUNTS FOR YEAR	1	1	1	1	1	1	1	1	1	1	1	1
SALES — GWH	14.2	80	120	250	500	790	900	1 020	1 140	1 230	1 770	1 870
EXPORT TO U.S.A.												
ACCOUNTS AT YEAR END	-	-	-	-	-	-	-	-	-	-	-	-
AVERAGE ACCOUNTS FOR YEAR	-	-	-	-	-	-	-	-	-	-	-	-
SALES — GWH	-	-	-	-	-	-	-	-	-	-	-	-
B.C. HYDRO USE												
ACCOUNTS AT YEAR END	283	240	228	218	214	214	215	216	217	219	221	223
AVERAGE ACCOUNTS FOR YEAR	290	255	232	222	215	213	214	216	217	218	220	222
SALES — GWH	21.4	19	18	17	17	18	18	19	19	20	20	21
TOTAL FORECAST SALES												
ACCOUNTS AT YEAR END	128 487	132 003	136 016	140 348	145 061	149 958	154 877	159 906	164 938	170 294	175 761	181 221
AVERAGE ACCOUNTS FOR YEAR	125 995	130 231	134 003	138 228	142 701	147 506	152 415	157 442	162 473	167 617	173 078	178 541
SALES — GWH	4 161.7	4 190	4 451	4 826	5 341	5 990	6 444	6 779	7 119	7 682	8 440	8 700

[a] Includes Cominco Requirements.

[b] West Kootenay Power and Light Co. Ltd.

TABLE AG-5

B.C.Hydro

PROBABLE PROJECTION OF ELECTRIC POWER SALES

(BILLED BASIS, NO ADJUSTMENT FOR ACCRUAL)

Division: Vancouver Island
Location: Total All Districts
Type: Probable
Date: 10 September 1982

DESCRIPTION	FISCAL YEARS											
	ACTUAL	PROJECTION										
	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
RESIDENTIAL												
1. **NON-HEATING**												
ACCOUNTS AT YEAR END	142 590	142 000	141 400	141 400	142 000	145 300	148 700	152 000	155 300	158 700	162 200	165 700
AVERAGE ACCOUNTS FOR YEAR	142 696	142 300	141 700	141 400	141 700	143 700	147 000	150 400	153 700	157 000	160 500	164 000
ANNUAL USE PER ACCOUNT — KWH	8 917	8 930	8 945	8 950	8 950	8 725	8 520	8 320	8 215	8 105	7 990	7 880
SALES — GWH	1 272.4	1 271	1 268	1 266	1 268	1 254	1 252	1 251	1 263	1 272	1 282	1 292
2. **HEATING**												
ACCOUNTS AT YEAR END	58 855	62 800	67 300	73 200	79 100	82 500	86 200	89 700	93 100	96 700	100 300	103 900
AVERAGE ACCOUNTS FOR YEAR	55 809	60 800	65 100	70 300	76 200	80 800	84 400	87 900	91 400	94 900	98 500	102 100
ANNUAL USE PER ACCOUNT — KWH	16 435	16 290	16 140	15 975	15 795	15 560	15 310	15 075	14 940	14 790	14 640	14 490
SALES — GWH	917.2	990	1 051	1 123	1 204	1 257	1 292	1 325	1 366	1 404	1 442	1 479
TOTAL RESIDENTIAL												
ACCOUNTS AT YEAR END	201 445	204 800	208 700	214 600	221 100	227 800	234 900	241 700	248 400	255 400	262 500	269 600
AVERAGE ACCOUNTS FOR YEAR	198 505	203 100	206 800	211 700	217 900	224 500	231 400	238 300	245 100	251 900	259 000	266 100
ANNUAL USE PER ACCOUNT — KWH	11 030	11 130	11 215	11 285	11 345	11 185	10 995	10 810	10 725	10 625	10 515	10 415
SALES — GWH	2 189.6	2 261	2 319	2 389	2 472	2 511	2 544	2 576	2 629	2 676	2 724	2 771
GENERAL												
1. **GENERAL — UNDER 35 KW**												
ACCOUNTS AT YEAR END	23 561	23 790	24 000	24 400	24 820	25 250	25 720	26 160	26 590	27 040	27 490	27 950
AVERAGE ACCOUNTS FOR YEAR	23 416	23 675	23 895	24 200	24 610	25 035	25 485	25 940	26 375	26 815	27 265	27 720
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	471.4	475	483	490	507	516	524	534	541	550	564	580
2. **GENERAL — 35 KW AND OVER**												
ACCOUNTS AT YEAR END	2 623	2 720	2 830	2 970	3 130	3 300	3 480	3 650	3 820	3 990	4 170	4 350
AVERAGE ACCOUNTS FOR YEAR	2 474	2 670	2 775	2 900	3 050	3 215	3 390	3 565	3 735	3 905	4 080	4 260
ANNUAL USE PER ACCOUNT — KWH												
SALES — GWH	1 002.7	1 005	1 032	1 107	1 156	1 193	1 230	1 269	1 309	1 347	1 402	1 456
TOTAL GENERAL												
ACCOUNTS AT YEAR END	26 184	26 510	26 830	27 370	27 950	28 550	29 200	29 810	30 410	31 030	31 660	32 300
AVERAGE ACCOUNTS FOR YEAR	25 890	26 345	26 670	27 100	27 660	28 250	28 875	29 505	30 110	30 720	31 345	31 980
SALES — GWH	1 474.1	1 480	1 515	1 597	1 663	1 709	1 754	1 803	1 850	1 897	1 966	2 036
IRRIGATION												
ACCOUNTS AT YEAR END	275	279	285	289	294	299	304	310	315	321	327	333
AVERAGE ACCOUNTS FOR YEAR	270	277	280	286	290	295	300	307	313	318	324	330
SALES — GWH	2.1	2	2	2	2	2	2	3	3	3	3	3
STREET LIGHTING												
SALES — GWH	39.2	40	40	41	42	43	45	46	47	49	50	51
BULK POWER												
ACCOUNTS AT YEAR END	9	9	9	9	9	9	9	9	9	10	10	10
AVERAGE ACCOUNTS FOR YEAR	9	9	9	9	9	9	9	9	9	10	10	10
SALES — GWH	2 705.6	2 830	2 855	3 090	3 235	3 310	3 440	3 545	3 630	3 710	3 795	3 875
INTER-UTILITY												
ACCOUNTS AT YEAR END	-	-	-	-	-	-	-	-	-	-	-	-
AVERAGE ACCOUNTS FOR YEAR	-	-	-	-	-	-	-	-	-	-	-	-
SALES — GWH	-	-	-	-	-	-	-	-	-	-	-	-
EXPORT TO U.S.A.												
ACCOUNTS AT YEAR END	-	-	-	-	-	-	-	-	-	-	-	-
AVERAGE ACCOUNTS FOR YEAR	-	-	-	-	-	-	-	-	-	-	-	-
SALES — GWH	-	-	-	-	-	-	-	-	-	-	-	-
B.C. HYDRO USE												
ACCOUNTS AT YEAR END	53	50	48	48	48	48	48	49	49	50	50	51
AVERAGE ACCOUNTS FOR YEAR	52	50	49	47	48	48	48	49	49	50	50	51
SALES — GWH	6.8	6	6	6	6	6	6	7	7	7	7	7
TOTAL FORECAST SALES												
ACCOUNTS AT YEAR END	227 966	231 648	235 872	242 316	249 401	256 706	264 461	271 878	279 183	286 811	294 547	302 294
AVERAGE ACCOUNTS FOR YEAR	224 726	229 781	233 808	239 142	245 907	253 102	260 632	268 170	275 581	282 998	290 729	298 471
SALES — GWH	6 417.4	6 619	6 737	7 125	7 420	7 581	7 791	7 980	8 166	8 342	8 545	8 743

B. C. HYDRO
HISTORIC AND PROBABLE PROJECTIONS
ELECTRIC ENERGY SALES AND AVERAGE NUMBER OF CUSTOMERS
LOWER MAINLAND DIVISION[a]

FISCAL YEARS	RESIDENTIAL			GENERAL - UNDER 35 KW			GENERAL - 35 KW & OVER			BULK (1800 SERIES)			OTHER[b]			TOTAL SALES		
	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.
	GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total	
HISTORIC[c]																		
1971/72	2 381	30.4	367 182	813	10.4	50 323	2 352	30.1	3 218	1 767	22.6	14	508[d]	6.5	555	7 821	100.0	421 292
1972/73	2 476	30.6	384 155	884	10.9	52 098	2 521	31.1	3 225	1 882	23.2	16	343	4.2	564	8 106	100.0	440 058
1973/74	2 662	29.9	399 736	955	10.7	53 765	2 833	31.8	3 368	2 092	23.5	16	361	4.1	578	8 903	100.0	457 463
1974/75	2 868	30.7	414 578	1 027	11.0	55 552	2 944	31.5	3 611	2 132	22.9	16	365	3.9	641	9 336	100.0	474 398
1975/76	3 116	33.0	428 095	1 091	11.5	57 873	3 028	32.1	3 907	1 821	19.3	17	386	4.1	710	9 442	100.0	490 602
1976/77	3 269	31.8	444 196	1 096	10.7	60 137	3 297	32.0	4 362	2 228	21.6	17	403	3.9	737	10 293	100.0	509 449
1977/78	3 444	31.8	461 153	1 127	10.4	61 154	3 496	32.3	4 751	2 344	21.7	17	410	3.8	748	10 821	100.0	527 823
1978/79	3 657	31.8	478 401	1 153	10.0	61 970	3 705	32.2	5 118	2 568	22.3	20	431	3.7	779	11 514	100.0	546 288
1979/80	3 825	31.8	490 345	1 187	9.8	62 516	3 908	32.5	5 599	2 657	22.1	20	458	3.8	800	12 035	100.0	559 280
1980/81	3 994	32.1	505 243	1 199	9.7	63 142	4 131	33.2	6 263	2 699	21.7	21	414	3.3	781	12 437	100.0	575 450
1981/82	4 248	32.7	517 792	1 259	9.7	63 454	4 364	33.6	6 774	2 677	20.6	22	435	3.4	809	12 983	100.0	588 851
Av. Annual Growth-% 10 Years: 71/72-81/82	6.0		3.5	4.5		2.3	6.4		7.7	4.2		4.6	-		3.8	5.2		3.4
PROJECTIONS																		
1982/83	4 394	33.8	530 400	1 250	9.6	64 230	4 335	33.4	7 185	2 570	19.8	23	447	3.4	836	12 996	100.0	602 674
1983/84	4 528	32.9	542 800	1 274	9.3	64 825	4 587	33.4	7 450	2 880	21.0	24	468	3.4	865	13 737	100.0	615 964
1984/85	4 668	32.6	556 300	1 300	9.1	65 510	4 777	33.3	7 815	3 105	21.6	25	488	3.4	890	14 338	100.0	630 540
1985/86	4 803	32.5	569 900	1 328	9.0	66 245	4 872	32.9	8 240	3 285	22.2	26	506	3.4	919	14 794	100.0	645 330
1986/87	4 940	32.5	583 800	1 356	8.9	67 015	5 019	33.0	8 660	3 355	22.1	26	524	3.5	949	15 194	100.0	660 450
1987/88	5 077	32.6	598 100	1 385	8.9	67 780	5 182	33.2	9 090	3 400	21.8	26	544	3.5	975	15 588	100.0	675 971
1988/89	5 215	32.6	612 700	1 415	8.8	68 535	5 354	33.4	9 540	3 470	21.7	26	563	3.5	1 001	16 017	100.0	691 802
1989/90	5 353	32.5	627 600	1 445	8.8	69 315	5 534	33.6	10 000	3 540	21.5	26	583	3.6	1 022	16 455	100.0	707 963
1990/91	5 487	32.5	642 500	1 475	8.7	70 125	5 729	33.9	10 455	3 595	21.3	26	603	3.6	1 043	16 889	100.0	724 149
1991/92	5 624	32.5	657 800	1 506	8.7	70 925	5 913	34.2	10 900	3 645	21.0	26	624	3.6	1 064	17 312	100.0	740 715
1992/93	5 767	32.6	673 400	1 537	8.7	71 690	6 080	34.3	11 340	3 675	20.7	26	648	3.7	1 086	17 707	100.0	757 542
Av. Annual Growth-% 11 Years: 81/82-92/93	2.8		2.4	1.8		1.1	3.1		4.8	2.9		1.5	3.7		2.7	2.9		2.3

NOTES:

[a] DC Power to Transit and Hydro Use for transit buildings are included in "Other" to 1979/80. As of 1 April 1980 these sales are included in "General - 35 kW and Over" and "General - Under 35 kW".

[b] Other - includes Irrigation, Street Lighting, Inter-Utility, Export and B. C. Hydro use.

[c] Effective 1 April 1981 - Lillooet transferred to South Interior Division. Historic adjusted to reflect re-organization.

[d] Includes 172.9 GW.h sale of surplus thermal energy to USBR under EL 48 in 1971/72 only.

GW.h: gigawatt hour = 1 million kilowatt hours.

10 September 1982

B. C. HYDRO
HISTORIC AND PROBABLE PROJECTIONS
ELECTRIC ENERGY SALES AND AVERAGE NUMBER OF CUSTOMERS
CENTRAL INTERIOR DIVISION

FISCAL YEARS	RESIDENTIAL			GENERAL - UNDER 35 KW			GENERAL - 35 KW & OVER			BULK (1800 SERIES)			OTHER			TOTAL SALES		
	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales[a]		Av. Cust.	Sales		Av. Cust.
	GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total	
HISTORIC																		
1971/72	369	20.8	43 187	127	7.2	7 096	453	25.5	815	807	45.5	9	18	1.0	173	1 774	100.0	51 280
1972/73	411	18.5	47 289	139	6.3	7 506	491	22.2	799	1 146	51.7	10	28	1.3	185	2 215	100.0	55 789
1973/74	468	18.5	51 821	161	6.4	8 075	552	21.8	724	1 333	52.7	10	14	0.6	196	2 528	100.0	60 826
1974/75	525	20.2	55 721	174	6.7	8 456	591	22.7	776	1 283	49.4	10	25	1.0	207	2 598	100.0	65 170
1975/76	572	21.3	58 778	183	6.8	8 772	678	25.3	826	1 221	45.5	10	29	1.1	200	2 683	100.0	68 586
1976/77	603	20.5	62 715	189	6.4	9 155	736	25.0	834	1 388	47.1	10	29	1.0	225	2 945	100.0	72 939
1977/78	663	20.6	65 621	203	6.3	9 275	809	25.1	901	1 515	47.0	10	31	1.0	230	3 221	100.0	76 037
1978/79	708	21.5	68 769	215	6.6	9 741	861	26.2	1 002	1 471	44.7	11	33	1.0	233	3 288	100.0	79 756
1979/80	723	21.2	71 622	219	6.4	10 125	926	27.2	1 137	1 504	44.2	12	34	1.0	251	3 406	100.0	83 147
1980/81	744	21.0	75 293	228	6.5	10 409	978	27.6	1 289	1 560	44.0	12	33	0.9	277	3 543	100.0	87 280
1981/82	793	22.4	78 766	235	6.7	10 664	954	27.0	1 383	1 518	42.9	14	35	1.0	307	3 535	100.0	91 134
Av. Annual Growth-% 10 Years: 71/72-81/82	8.0		6.2	6.3		4.2	7.7		5.4	6.5		4.5	6.9		5.9	7.1		5.9
PROJECTIONS																		
1982/83	817	22.3	80 900	235	6.4	10 865	905	24.7	1 465	1 675	45.7	19	35	0.9	322	3 667	100.0	93 571
1983/84	844	21.3	83 400	243	6.2	11 065	927	23.4	1 525	1 910	48.2	20	37	0.9	333	3 961	100.0	96 343
1984/85	870	20.4	86 200	252	5.9	11 300	1 001	23.5	1 605	2 105	49.3	20	37	0.9	345	4 265	100.0	99 470
1985/86	901	20.0	89 300	260	5.8	11 535	1 074	23.8	1 700	2 235	49.6	20	38	0.8	356	4 508	100.0	102 911
1986/87	933	19.8	92 600	268	5.7	11 790	1 130	23.9	1 800	2 350	49.8	20	40	0.8	365	4 721	100.0	106 575
1987/88	969	19.5	96 100	276	5.6	12 055	1 167	23.5	1 905	2 510	50.6	20	42	0.8	376	4 964	100.0	110 456
1988/89	1 004	19.3	99 600	285	5.5	12 340	1 208	23.3	2 010	2 650	51.1	20	43	0.8	387	5 190	100.0	114 357
1989/90	1 039	18.6	103 200	294	5.2	12 635	1 256	22.4	2 115	2 965	53.0	22	45	0.8	399	5 599	100.0	118 371
1990/91	1 075	17.8	106 900	304	5.0	12 930	1 303	21.6	2 220	3 310	54.8	22	46	0.8	411	6 038	100.0	122 483
1991/92	1 112	17.2	110 800	314	4.9	13 235	1 358	21.1	2 320	3 610	56.0	23	49	0.8	423	6 443	100.0	126 801
1992/93	1 149	17.0	114 700	324	4.8	13 540	1 415	20.9	2 425	3 835	56.6	23	50	0.7	435	6 773	100.0	131 123
Av. Annual Growth-% 11 Years: 81/82-92/93	3.4		3.5	3.0		2.2	3.6		5.2	8.8		4.6	3.3		3.2	6.1		3.4

NOTES:

[a] Other - includes Irrigation, Street Lighting, Inter-Utility and B. C. Hydro Use.

10 September 1982

MST186

B. C. HYDRO
HISTORIC AND PROBABLE PROJECTIONS
ELECTRIC ENERGY SALES AND AVERAGE NUMBER OF CUSTOMERS
NORTH COAST DIVISION

FISCAL YEARS	RESIDENTIAL			GENERAL - UNDER 35 KW			GENERAL - 35 KW & OVER			BULK (1800 SERIES)			OTHER			TOTAL SALES		
	Sales GW.h	Sales % Total	Av. Cust.	Sales GW.h	Sales % Total	Av. Cust.	Sales GW.h	Sales % Total	Av. Cust.	Sales GW.h	Sales % Total	Av. Cust.	Sales[a] GW.h	Sales[a] % Total	Av. Cust.	Sales GW.h	Sales % Total	Av. Cust.
HISTORIC																		
1971/72	193	27.8	17 890	55	7.9	3 136	128	18.4	333	312	45.0	3	6	0.9	27	694	100.0	21 389
1972/73	208	29.0	18 711	60	8.3	3 246	120	16.7	304	323	45.0	2	7	1.0	28	718	100.0	22 291
1973/74	228	27.0	19 444	67	7.9	3 435	152	18.0	256	392	46.3	2	7	0.8	30	846	100.0	23 167
1974/75	243	28.4	20 356	72	8.4	3 563	151	17.7	259	381	44.6	2	8	0.9	34	855	100.0	24 214
1975/76	267	32.9	21 273	80	9.8	3 739	155	19.1	283	301	37.1	2	9	1.1	38	812	100.0	25 335
1976/77	273	29.7	22 397	79	8.6	3 909	183	19.9	321	374	40.8	2	9	1.0	41	918	100.0	26 670
1977/78	289	30.5	22 813	84	8.9	3 998	202	21.3	333	364	38.4	2	9	0.9	44	948	100.0	27 190
1978/79	295	26.5	23 320	88	7.9	4 141	222	19.9	345	499	44.8	2	10	0.9	44	1 114	100.0	27 852
1979/80	293	28.4	24 026	91	8.8	4 211	245	23.8	381	391	38.0	2	10	1.0	39	1 030	100.0	28 659
1980/81	303	26.5	25 264	91	8.0	4 295	262	22.9	435	476	41.6	4	11	1.0	37	1 143	100.0	30 035
1981/82	328	27.1	26 600	94	7.8	4 413	247	20.4	486	531	43.8	5	11	0.9	35	1 211	100.0	31 539
Av. Annual Growth-% 10 Years: 71/72-81/82	5.4		4.0	5.5		3.5	6.8		3.9	5.5		5.2	6.2		2.6	5.7		4.0
PROJECTIONS																		
1982/83	340	27.6	27 520	96	7.8	4 490	257	20.8	530	530	42.9	5	11	0.9	33	1 234	100.0	32 578
1983/84	351	25.4	28 400	98	7.1	4 565	275	19.9	555	645	46.8	7	11	0.8	34	1 380	100.0	33 561
1984/85	364	24.3	29 500	101	6.8	4 660	294	19.7	585	725	48.5	7	11	0.7	35	1 495	100.0	34 787
1985/86	378	24.3	30 700	104	6.7	4 775	321	20.7	620	740	47.6	7	11	0.7	37	1 554	100.0	36 139
1986/87	391	18.3	32 000	108	5.1	4 900	347	16.3	660	1 275	59.8	9	12	0.5	38	2 133	100.0	37 607
1987/88	406	16.4	33 300	111	4.5	5 020	364	14.7	700	1 580	63.9	9	12	0.5	40	2 473	100.0	39 069
1988/89	420	15.8	34 600	115	4.3	5 140	380	14.3	740	1 730	65.1	10	12	0.5	42	2 657	100.0	40 532
1989/90	433	15.5	35 900	119	4.2	5 260	396	14.2	780	1 830	65.6	10	13	0.5	42	2 791	100.0	41 992
1990/91	445	15.2	37 200	123	4.2	5 385	413	14.1	825	1 930	66.0	10	14	0.5	44	2 925	100.0	43 464
1991/92	459	14.4	38 700	127	4.0	5 515	431	13.6	875	2 150	67.6	11	14	0.4	44	3 181	100.0	45 145
1992/93	474	13.9	40 200	131	3.9	5 645	450	13.2	925	2 335	68.6	11	14	0.4	46	3 404	100.0	46 827
Av. Annual Growth-% 11 Years: 81/82-92/93	3.4		3.8	3.1		2.3	5.6		6.0	14.4		7.4	2.2		2.5	9.9		3.7

NOTES:

[a] Other - includes Irrigation, Street Lighting, Export and B. C. Hydro Use.

10 September 1982

TABLE AG-9

SOUTH INTERIOR DIVISION

B. C. HYDRO
HISTORIC AND PROBABLE PROJECTIONS
ELECTRIC ENERGY SALES AND AVERAGE NUMBER OF CUSTOMERS
SOUTH INTERIOR DIVISION

FISCAL YEARS	RESIDENTIAL			GENERAL - UNDER 35 KW			GENERAL - 35 KW & OVER			BULK (1800 SERIES)[c]			OTHER[d]			TOTAL SALES		
	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales[b]		Av. Cust.	Sales		Av. Cust.
	GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total	
HISTORIC[a]																		
1971/72	469	28.3	58 850	137	8.3	9 608	444	26.8	839	570	34.5	9	35	2.1	918	1 655	100.0	70 224
1972/73	543	23.2	66 606	167	7.1	10 824	495	21.2	767	1 094	46.8	9	39	1.7	969	2 338	100.0	79 175
1973/74	606	23.0	72 768	190	7.2	11 489	584	22.2	706	1 205	45.7	9	50	1.9	1 032	2 635	100.0	86 004
1974/75	700	25.4	78 874	209	7.6	12 039	583	21.2	766	1 205	43.7	9	58	2.1	1 141	2 755	100.0	92 829
1975/76	788	27.7	83 833	229	8.0	12 664	611	21.5	838	1 151	40.5	9	65	2.3	1 219	2 844	100.0	98 563
1976/77	846	27.7	88 943	239	7.8	13 351	653	21.4	957	1 260	41.2	9	58	1.9	1 272	3 056	100.0	104 532
1977/78	919	28.2	93 138	254	7.8	13 639	680	20.9	1 100	1 339	41.1	10	66	2.0	1 341	3 258	100.0	109 228
1978/79	994	28.1	97 148	267	7.6	13 935	730	20.6	1 218	1 482	41.9	10	64	1.8	1 414	3 537	100.0	113 725
1979/80	981	26.9	100 125	269	7.4	14 038	768	21.1	1 365	1 547	42.5	11	77	2.1	1 424	3 642	100.0	116 963
1980/81	1 008	26.5	103 376	259	6.8	14 172	801	21.0	1 601	1 661	43.6	12	78	2.1	1 575	3 807	100.0	120 736
1981/82	1 082	26.0	108 107	269	6.5	14 450	810	19.5	1 777	1 907	45.8	12	94	2.2	1 649	4 162	100.0	125 995
Av. Annual Growth-% 10 Years: 71/72-81/82	8.7		6.3	7.0		4.2	6.2		7.8	12.8		2.9	10.4		6.0	9.7		6.0
PROJECTIONS																		
1982/83	1 128	26.9	112 000	272	6.5	14 630	853	20.3	1 915	1 775	42.4	15	162	3.9	1 671	4 190	100.0	130 231
1983/84	1 166	26.2	115 400	278	6.3	14 900	845	19.0	1 995	1 960	44.0	14	202	4.5	1 694	4 451	100.0	134 003
1984/85	1 207	25.0	119 200	285	5.9	15 180	866	18.0	2 095	2 135	44.2	14	333	6.9	1 739	4 826	100.0	138 228
1985/86	1 251	23.4	123 200	294	5.5	15 485	905	16.9	2 215	2 305	43.2	14	586	11.0	1 787	5 341	100.0	142 701
1986/87	1 296	21.6	127 500	304	5.1	15 810	945	15.8	2 340	2 565	42.8	15	880	14.7	1 841	5 990	100.0	147 506
1987/88	1 341	20.8	131 900	313	4.9	16 135	987	15.3	2 465	2 810	43.6	16	993	15.4	1 899	6 444	100.0	152 415
1988/89	1 387	20.5	136 400	323	4.8	16 470	1 027	15.1	2 595	2 925	43.1	16	1 117	16.5	1 961	6 779	100.0	157 442
1989/90	1 432	20.1	140 900	333	4.7	16 815	1 069	15.0	2 720	3 045	42.8	16	1 240	17.4	2 022	7 119	100.0	162 473
1990/91	1 477	19.2	145 500	343	4.5	17 170	1 112	14.5	2 845	3 415	44.4	18	1 335	17.4	2 084	7 682	100.0	167 617
1991/92	1 525	18.1	150 400	354	4.2	17 535	1 157	13.7	2 975	3 525	41.8	18	1 879	22.2	2 150	8 440	100.0	173 078
1992/93	1 574	18.1	155 300	365	4.2	17 905	1 202	13.8	3 100	3 575	41.1	18	1 984	22.8	2 218	8 700	100.0	178 541
Av. Annual Growth-% 11 Years: 81/82-92/93	3.5		3.3	2.8		2.0	3.7		5.2	5.9		3.8	31.9		2.7	6.9		3.2

NOTES:

[a] Effective 1 April 1981 - Lillooet transferred from Lower Mainland Division. Historic has been adjusted to reflect reorganization.
[b] Other - includes Irrigation, Street Lighting, Inter-Utility and B. C. Hydro Use.
[c] Includes sales requirements of Cominco Ltd. starting 1986/87.
[d] Includes sales requirements of West Kootenay Power & Light Co. Ltd utility system starting 1981/82.

	WKP&L GW.h	Cominco GW.h		WKP&L GW.h	Cominco GW.h
1981/82 (Actual)	14	-	1987/88	900	160
1982/83	80	-	1988/89	1 020	160
1983/84	120	-	1989/90	1 140	160
1984/85	250	-	1990/91	1 230	160
1985/86	500	-	1991/92	1 770	160
1986/87	790	70	1992/93	1 870	160

10 September 1982

MST188

TABLE AG-9

B. C. HYDRO
HISTORIC AND PROBABLE PROJECTIONS
ELECTRIC ENERGY SALES AND AVERAGE NUMBER OF CUSTOMERS
VANCOUVER ISLAND DIVISION

FISCAL YEARS	RESIDENTIAL			GENERAL - UNDER 35 KW			GENERAL - 35 KW & OVER			BULK (1800 SERIES)			OTHER[a]			TOTAL SALES		
	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.	Sales		Av. Cust.
	GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total		GW.h	% Total	
HISTORIC																		
1971/72	1 053	24.8	125 784	276	6.5	17 175	478	11.3	1 065	2 404	56.6	8	33	0.8	192	4 244	100.0	144 224
1972/73	1 101	24.3	132 255	296	6.5	17 971	486	10.7	1 021	2 621	57.7	8	36	0.8	203	4 540	100.0	151 458
1973/74	1 212	24.8	139 998	333	6.8	18 850	551	11.3	971	2 754	56.3	9	38	0.8	209	4 888	100.0	160 037
1974/75	1 349	26.8	147 956	362	7.2	19 770	572	11.3	1 040	2 713	53.9	9	39	0.8	229	5 035	100.0	169 004
1975/76	1 515	31.1	154 836	402	8.2	20 890	605	12.4	1 136	2 314	47.4	9	43	0.9	257	4 879	100.0	177 128
1976/77	1 634	28.6	164 427	418	7.3	22 046	702	12.3	1 334	2 916	51.1	9	42	0.7	280	5 712	100.0	188 096
1977/78	1 736	29.3	172 538	433	7.3	22 177	785	13.3	1 569	2 917	49.3	9	45	0.8	305	5 916	100.0	196 598
1978/79	1 838	29.3	179 756	436	7.0	22 597	835	13.3	1 759	3 113	49.7	9	45	0.7	319	6 267	100.0	204 440
1979/80	1 905	29.7	184 903	447	7.0	22 902	889	13.9	1 954	3 118	49.7	10	46	0.7	327	6 405	100.0	210 096
1980/81	1 993	30.0	190 835	449	6.8	23 071	946	14.3	2 234	3 201	48.2	10	45	0.7	324	6 634	100.0	216 474
1981/82	2 189	34.1	198 505	471	7.3	23 416	1 003	15.6	2 474	2 706	42.2	9	48	0.8	322	6 417	100.0	224 726
Av. Annual Growth-% 10 Years: 71/72-81/82	7.6		4.7	5.5		3.1	7.7		8.8	1.2		1.2	3.8		5.3	4.2		4.5
PROJECTIONS																		
1982/83	2 261	34.2	203 100	475	7.2	23 675	1 005	15.2	2 670	2 830	42.7	9	48	0.7	327	6 619	100.0	229 781
1983/84	2 319	34.4	206 800	483	7.2	23 895	1 032	15.3	2 775	2 855	42.4	9	48	0.7	329	6 737	100.0	233 808
1984/85	2 389	33.5	211 700	490	6.9	24 200	1 107	15.5	2 900	3 090	43.4	9	49	0.7	333	7 125	100.0	239 142
1985/86	2 472	33.3	217 900	507	6.8	24 610	1 156	15.6	3 050	3 235	43.6	9	50	0.7	338	7 420	100.0	245 907
1986/87[b]	2 511	33.1	224 500	516	6.8	25 035	1 193	15.7	3 215	3 310	43.7	9	51	0.7	343	7 581	100.0	253 102
1987/88	2 544	32.6	231 400	524	6.7	25 485	1 230	15.8	3 390	3 440	44.2	9	53	0.7	348	7 791	100.0	260 632
1988/89	2 576	32.3	238 300	534	6.7	25 940	1 269	15.9	3 565	3 545	44.4	9	56	0.7	356	7 980	100.0	268 170
1989/90	2 629	32.2	245 100	541	6.6	26 375	1 309	16.0	3 735	3 630	44.5	9	57	0.7	362	8 166	100.0	275 581
1990/91	2 676	32.1	251 900	550	6.6	26 815	1 347	16.1	3 905	3 710	44.5	10	59	0.7	368	8 342	100.0	282 998
1991/92	2 724	31.9	259 000	564	6.6	27 265	1 402	16.4	4 080	3 795	44.4	10	60	0.7	374	8 545	100.0	290 729
1992/93	2 771	31.7	266 100	580	6.6	27 720	1 456	16.7	4 260	3 875	44.3	10	61	0.7	381	8 743	100.0	298 471
Av. Annual Growth-% 11 Years: 81/82-92/93	2.2		2.7	1.9		1.5	3.4		5.1	3.3		1.0	2.2		1.5	2.9		2.6

NOTES:

[a] Other - includes Irrigation, Street Lighting and B. C. Hydro Use.
[b] Assumes Natural Gas on Vancouver Island by 1986/87.

10 September 1982

APPENDIX H

ELECTRIC PLANNING REQUIREMENTS

Page

H.1 Introduction 272

H.2 Distribution System Planning 272

H.3 Vancouver Island 273

TABLE AH-1 Probable Projections of Power Districts' Peak Loads - Central Interior Division 274

TABLE AH-2 Probablc Projections of Power Districts' Peak Loads - North Coast Division 275

TABLE AH-3 Probable Projections of Power Districts' Peak Loads - South Interior Division 276

TABLE AH-4 Probable Projections of Power Districts' Peak Loads - Vancouver Island Division 277

TABLE AH-5 Vancouver Island Integrated System 1982 Probable Forecast of Electric Gross Load Requirements with and without Natural Gas 278

APPENDIX H

ELECTRIC PLANNING REQUIREMENTS

H.1 Introduction

This appendix provides further detail to Part Seven as required for system planning. In particular, details for distribution planning and Vancouver Island are included.

H.2 Distribution System Planning

For distribution planning purposes, sales for each district are taken separately, losses added and using an annual load factor a 6-year forecast of peak demand for each district is made. The peak estimates are based on normal weather and a percentage allowance is specified by which these normal winter peak demands may be exceeded should colder weather occur in say one year out of ten.

Concurrent with the foregoing forecast preparation, B. C. Hydro's Distribution Engineering Department prepare independent forecasts of substation peak demands for each power district and sub-district. The Load Forecast Engineer and the Manager of Distribution Engineering together meet with divisional staffs to review the peak load projections and, considering load diversity, arrive at a consensus for distribution planning purposes.

The Power District peak load projections are shown in TABLES AH-1 through AH-4.

The Lower Mainland Division consists of five very large and closely woven areas. Because system and distribution planning generally involve handling the Division as one homogenous area, no area peak forecasts are presently made by the Load Forecast Department.

H.3 Vancouver Island

Because of its geographic location, i.e. isolated from the Mainland area, studies encompassing the load on the Vancouver Island integrated system only are often required. The forecast assumes natural gas will be available on Vancouver Island by 1986/87 but because of the still remaining uncertainty, a projection assuming no natural gas on Vancouver Island is also provided for general information.

TABLE AH-5 shows projected peak and energy requirements for the Vancouver Island integrated system with and without natural gas.

- columns 1, 2 give the approved 1982 projection i.e. natural gas on Vancouver Island by 1986/87;

- columns 3, 4 give the projection assuming natural gas is not extended to Vancouver Island. This projection is not a maximum electric forecast i.e. no policy change is assumed to promote electricity (conversion from oil to electricity) on Vancouver Island.

- columns 5, 6 give the additional electric requirements if gas is not extended to Vancouver Island. Similar to columns 3, 4 this is not a maximum case but the difference in assumptions between columns 1, 2 and 3, 4.

TABLE AH-1

B. C. HYDRO

CENTRAL INTERIOR DIVISION

FINAL PROBABLE PROJECTIONS OF POWER DISTRICTS' PEAK LOADS

(Based on a Pro-Rating of Power Districts' Energy (GW.h))
(Forecasts to Division Total and Estimated Normal Weather Annual Load Factors)
(Does not include Bulk Sales)

(MW)

District	Actual 1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	6-Year Average Annual Growth	Cold Weather Increase[a]
100 Mile House	33.67	29.70[b]	29.90	30.40	31.20	32.20	33.10	-	5%
Williams Lake	60.09	60.20	61.30	62.40	64.30	66.60	68.90	2.3%	5%
Quesnel	59.51	60.00	61.80	65.20	67.30	69.50	71.80	3.2%	5%
Prince George	177.55	183.00	186.00	194.00	201.00	208.00	216.00	3.3%	5%
Vanderhoof	30.67	27.00[c]	27.50	28.90	29.90	30.90	31.90	0.7%	4%
Burns Lake	18.91	18.40	19.00	19.50	20.00	20.60	21.20	1.9%	4%
Chetwynd	14.62	15.50	16.40	17.80	19.00	20.20	21.20	6.4%	4%
Tumbler Ridge	-	1.03	3.70	6.26	6.85	6.96	7.01	-	4%
Dawson Creek	25.60	25.60	26.10	26.90	27.70	28.70	29.80	2.6%	3%
Fort St. John	46.10	44.00[d]	44.60	47.10	50.00	53.00	56.40	3.4%	3%
Site C Constr. Power	-	-	-	8.50	13.80	13.80	8.50	-	3%
Fort Nelson	13.65	12.00	13.20	14.20	15.10	16.10	17.30	4.0%	4%
McBride	3.99	4.00	4.16	4.23	4.32	4.40	4.49	2.0%	4%
Valemount	4.32	4.37	4.68	4.89	5.03	5.16	5.29	3.4%	5%
Total Division[e]	488.68	484.80	498.34	521.78	541.70	562.32	584.39	3.0%	

---

[a] The annual peaks and resulting compound growth rates tabulated for each District are based on normal winter temperatures. Under cold weather conditions these normal weather annual peaks may be exceeded by the respective percentages shown. Compound growth rates would change accordingly.

[b] 4.1 MW to Bulk - Boss Mountain. (May 1982)

[c] 5.0 MW to Bulk - West Fraser Mills. (May 1982)

[d] 5.2 MW to Bulk - Texaco.

[e] Excluding Site C Construction Power

B. C. HYDRO

NORTH COAST DIVISION

FINAL PROBABLE PROJECTIONS OF POWER DISTRICTS' PEAK LOADS

(Based on a Pro-Rating of Power Districts' Energy (GW.h))
(Forecasts to Division Total and Estimated Normal Weather Annual Load Factors)
(Does not include Bulk Sales)

(MW)

District	Actual 1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	6-Year Average Annual Growth	Cold Weather Increase[a]
Smithers	44.30	46.00	47.50	49.40	51.40	53.90	56.20	4.0%	7%
Kitimat	18.40	21.70	22.80	24.00	27.20	29.90	31.00	9.1%	10%
Terrace	37.33	38.00	38.60	39.40	40.50	41.70	43.00	2.4%	6%
Prince Rupert	42.50	44.30	46.80	49.20	51.60	54.20	56.90	5.0%	6%
Atlin	.58	.62	.67	.74	.79	.86	.92	8.0%	10%
Stewart	2.99	3.16	3.31	3.42	3.53	3.63	3.74	3.8%	8%
Telegraph Creek	.28	.29	.30	.32	.33	.34	.35	3.8%	10%
Eddontenajon	.29	.30	.31	.32	.33	.34	.35	3.2%	10%
Dease Lake	.66	.77	.86	.93	1.00	1.06	1.12	9.2%	10%
Queen Charl.-Sandspit	3.86	4.40	4.56	4.73	4.90	5.08	5.27	5.3%	5%
Queen Charl.-Mass./ Pt. C.	3.65	3.76	3.90	4.07	4.19	4.31	4.44	3.3%	5%
Bella Bella	1.85	2.02	2.08	2.14	2.20	2.27	2.33	3.9%	5%
Bella Coola	2.50	2.54	2.63	2.72	2.80	2.90	3.00	3.1%	10%
Anahim Lake	.56	.65	.67	.69	.72	.75	.78	5.7%	10%
Tatla Lake	.26	.26	.27	.28	.29	.30	.30	2.4%	10%
Total Division	160.01	168.77	175.26	182.36	191.78	201.54	209.70	4.6%	

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[a] The annual peaks and resulting compound growth rates tabulated for each District are based on normal winter temperatures. Under cold weather conditions these normal weather annual peaks may be exceeded by the respective percentages shown. Compound growth rates would change accordingly.

B. C. HYDRO

SOUTH INTERIOR DIVISION

FINAL PROBABLE PROJECTIONS OF POWER DISTRICTS' PEAK LOADS

(Based on a Pro-Rating of Power Districts' Energy (GW.h))
(Forecasts to Division Total and Estimated Normal Weather Annual Load Factors)
(Does not include Bulk Sales)

(MW)

District	Actual 1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	6-Year Average Annual Growth	Cold Weather Increase[a]
Lillooet	12.22	13.30	13.50	14.00	14.50	15.00	15.50	4.0%	5%
Cache Creek	10.87	11.30	11.50	11.60	11.80	12.00	12.20	1.9%	5%
Kamloops	119.91	121.00	124.00	129.00	135.00	141.00	147.00	3.5%	10%
Clearwater	17.32	17.20	17.90	18.60	19.10	19.70	20.30	2.7%	10%
Vernon	112.04	115.00	118.00	122.00	128.00	133.00	139.00	3.7%	10%
Salmon Arm	63.72	63.60	65.70	68.60	71.40	74.30	77.20	3.3%	10%
Merritt	21.12	21.10	21.70	22.40	23.30	24.50	25.60	3.3%	5%
Westbank-Peachland	28.32	29.00	30.10	32.00	34 30	36.30	38.10	5.1%	10%
Nakusp	9.93	10.00	10.40	11.00	11.30	11.60	12.00	3.2%	5%
Lardeau (incl.in Nakusp)	(.91)	(.95)	(.98)	(1.01)	(1.03)	(1.06)	(1.09)	3.1%	5%
Revelstoke	24.06	24.00	24.10	24.30	24.30	24.30	24.30	0.2%	15%
Revelstoke Constr. Power[b]	13.59	13.60	13.50	6.40	-	-	-	-	5%
Golden	12.14	12.70	13.10	14.00	14.60	15.10	15.60	4.3%	10%
Invermere	33.27	31.10	32.80	35.60	37.90	40.10	42.30	4.1%	10%
Kimberley	12.05	12.30	12.70	13.30	13.70	14.10	14.50	3.1%	5%
Cranbrook	36.67	37.60	38.60	40.10	42.20	44.40	46.40	4.0%	5%
Kingsgate-Yahk (incl.in Cranbrook)	(.55)	(.62)	(.65)	(.68)	(.72)	(.75)	(.79)	6.2%	5%
Fernie	30.31	31.50	33.40	35.10	36.80	38.70	40.50	4.9%	5%
Newgate (incl.in Fernie)[c]	(0.3)	(.03)	(.03)	(.03)	(.03)	(0.3)	(.03)	-	5%
Total Division[d]	543.95	550.70	567.50	591.60	618.20	644.10	670.50	3.5%	

[a] The annual peaks and resulting compound growth rates tabulated for each District are based on normal winter temperatures. Under cold weather conditions these normal weather annual peaks may be exceeded by the respective percentages shown. Compound growth rates would change accordingly.

[b] Estimated maximum peaks for each year as follows:
1981/82 - (actual) August 1981
1982/83 - July 1982
1983/84 - June and July 1983
1984/85 - April 1984

[c] Newgate Winter Peak.

[d] Excluding Revelstoke Construction Power

TABLE AH-4

B. C. HYDRO

VANCOUVER ISLAND DIVISION

FINAL PROBABLE PROJECTIONS OF POWER DISTRICTS' PEAK LOADS

(Based on a Pro-Rating of Power Districts' Energy (GW.h))
(Forecasts to Division Total and Estimated Normal Weather Annual Load Factors)
(Does not include Bulk Sales)

(MW)

District	Actual 1981/82	1982/83	1983/84	1984/85	1985/86	1986/87[c]	1987/88	6-Year Average Annual Growth	Cold Weather Increase[a]
Victoria	426.33	434.00	447.00	467.00	484.00	497.00	509.00	3.0%	10%
Duncan	75.08	76.20	77.70	80.90	83.50	85.40	87.20	2.5%	10%
Gulf Islands	21.10	19.60	20.50	21.70	23.00	24.30	25.80	3.4%	10%
Nanaimo	146.24	149.00	156.00	165.00	175.00	181.00	187.00	4.2%	10%
Parksville/Qualicum	46.40	46.60	49.30	53.40	57.70	60.20	62.60	5.1%	10%
Alberni	54.29	54.80	55.50	56.60	58.20	59.20	60.00	1.7%	10%
Courtenay	68.16	70.70	74.60	78.60	83.10	85.60	88.00	4.3%	12%
Campbell River (incl. Gold River + Tahsis Village load)	65.44	67.60	70.20	74.00	78.10	80.40	82.50	3.9%	11%
Zeballos[b,e]	.44	.47	.48	.49					5%
Port Hardy	27.06	27.20	27.90	28.70	29.80	31.00	32.30	3.0%	7%
Bamfield	.70	.69	.70	.71	.73	.76	.78	1.8%	5%
Ahousat[d]	.30								
Total Division	931.54	946.86	979.88	1027.10	1073.13	1104.86	1135.18	3.4%	

---

[a] The annual peaks and resulting compound growth rates tabulated for each District are based on normal winter temperatures. Under cold weather conditions these normal weather annual peaks may be exceeded by the respective percentages shown. Compound growth rates would change accordingly.

[b] Diesel generating station owned by Tahsis Lumber Co. Ltd. Peaks shown do not include service to the Tahsis Logging Camp because by special agreement equivalent energy is not billed.

[c] Projections based on assumption natural gas will be on Vancouver Island by 1986/87 and will be available to 70% of population in all Districts except Gulf Islands, Port Hardy, and Bamfield.

[d] Ahousat to be integrated in Alberni Power District, 1 October 1982.

[e] Zeballos to be integrated in Campbell River Power District (Tahsis) 1 April 1985.

MST140

10 September 1982

B. C. HYDRO

VANCOUVER ISLAND INTEGRATED SYSTEM

1982 PROBABLE FORECAST OF ELECTRIC GROSS LOAD REQUIREMENTS WITH AND WITHOUT NATURAL GAS

(Includes all losses)

Fiscal Year	Vancouver Island Integrated System assuming Natural Gas on Island by 1986/87 (approved 1982 projection)		Vancouver Island Integrated System with no[a] Natural Gas (done for comparison purposes only)		Vancouver Island Integrated System additional requirements if Natural Gas not extended to Island	
	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)	Peak (MW)	Energy (GW.h)
1981/82 (Actual)	1 341	7 010	1 341	7 010	-	-
1982/83	1 375	7 380	1 375	7 385	-	5
1983/84	1 440	7 520	1 440	7 525	-	5
1984/85	1 505	7 950	1 510	7 965	5	15
1985/86	1 560	8 275	1 565	8 295	5	20
1986/87	1 585	8 460	1 595	8 515	10	55
1987/88	1 615	8 690	1 635	8 800	20	110
1988/89	1 640	8 900	1 670	9 065	30	165
1989/90	1 665	9 105	1 700	9 315	35	210
1990/91	1 685	9 300	1 735	9 570	50	270
1991/92	1 725	9 530	1 785	9 840	60	310
1992/93	1 765	9 750	1 830	10 100	65	350
11 Yr. Av. Growth 1981/82:1992/93		3.0%		3.4%		
1993/94	1 800	9 950	1 870	10 320	70	370
1994/95	1 840	10 140	1 910	10 550	70	410
1995/96	1 870	10 340	1 960	10 790	90	450
1996/97	1 900	10 510	1 990	10 990	90	480
1997/98	1 940	10 710	2 030	11 230	90	520
1998/99	1 970	10 880	2 070	11 440	100	560
1999/2000	2 000	11 050	2 110	11 640	110	590
2000/01	2 020	11 150	2 130	11 780	110	630
2001/02	2 060	11 380	2 180	12 040	120	660
2002/03	2 100	11 610	2 230	12 310	130	700
21 Yr. Av. Growth 1981/82:2002/03		2.4%		2.7%		

[a] This assumption is based on no natural gas to Vancouver Island and limited conversion from oil to electricity i.e. no change in the present policy on Vancouver Island occurs.

APPENDIX I

ASSUMPTIONS TO THE NATURAL GAS SALES PROJECTIONS
(Low, Probable and High)

		Page
I.1	Abbreviations	280
I.2	General Assumptions Relating to the Three Natural Gas Projections	280
TABLE AI-1	Comparison of Load Projections; Probable vs High vs Low; Sept/82 vs Sept/81.	287
TABLE AI-2	Non-Heating Component of Residential and General Average Annual Use Rates.	288
TABLE AI-3	Space Heating Component of Residential and General Average Annual Use Rates.	289
TABLE AI-4	Conversions of Houses from Oil to Natural Gas.	290
TABLE AI-5	Conversions of Apartments from Oil to Natural Gas.	291
TABLE AI-6	Residential and General Accounts with Space Heating Added to the Natural Gas System.	292
TABLE AI-7	Net Interruptible Sales other than CNG.	293
TABLE AI-8	Projections of Compressed Natural Gas; Low, Probable and High Projections; Lower Mainland.	294
TABLE AI-9	Interruptible Load by Classification for Fiscal Year 1981/82.	295
TABLE AI-10	Relationship between Net Residential Electric and Natural Gas Accounts in the Lower Mainland.	296

APPENDIX I

ASSUMPTIONS TO THE NATURAL GAS SALES PROJECTIONS

(Low, Probable and High)

I.1 Abbreviations

The abbreviations used in the following assumptions are explained below.

Customer Classifications

RWOH - Residential Service without Space Heating
RWH - Residential Service with Space Heating

GWOH - Non-Residential Service without Space Heating (General)
GWH - Non-Residential Service with Space Heating (General)

SEAS - Industrial or Commercial Service Principally during Off-Peak Period
INT - Interruptible Service for General, Commercial or Industrial Use

Common Abbreviations

BF - Basic Firm (non-interruptible)
UAF - Un-Accounted For Gas (System Losses and Metering Errors)

LPG - Liquid Petroleum Gas (Victoria System)
CNG - Compressed Natural Gas (for Automotive Purposes)

Metro - Metropolitan
FV - Fraser Valley

LM - Lower Mainland
BU - Billing Unit (10^8 Joules)

I.2 General Assumptions Relating to the Three Natural Gas Projections

1. Three sales projections have been prepared for the 21 year period ending 2002/03, viz low, probable and high.

2. These projections will be extended another 10 years to the year 2012/13 if required for hearings, etc.

3. The probable projection is the most important one. It is the one upon which contract demand nomination, budgets, and timing of system expansion or improvements will be based.

4. The high projection will show loads and revenues greater than for the probable one, while the low projection will show smaller loads and revenues than the latter.

5. Neither the high nor the low projection is based on extreme sets of assumptions such as unavailability or dumping of natural gas. Both these projections can be realized when the pace of the economy speeds up or slows down from the conditions assumed for the probable projection.

6. The residential space heating load additions for electricity and natural gas in the Lower Mainland were closely integrated. This was done taking into consideration such factors as types of dwelling, demolitions, capture rates and conversions from oil.

7. The residential load forecasts are closely related to the three population forecasts shown in B. C. Hydro's Long Term Economic Outlook issued in July 1982.

8. The forecasts for the general load categories are to a large degree determined by the GDP projections shown in the document referred to above under (7).

9. The interruptible load was reduced very significantly relative to last year's forecasts. There are a number of reasons for this:

   (a) It is very unlikely that major natural gas using projects will be located in the Lower Mainland area as a result of strong public opposition to such developments because of environmental concerns.

   (b) The long term economic outlook is down compared to last year.

(c) The major effort made this spring to interest former interruptible customers and large firm accounts to switch to the interruptible tariff met with very limited success.

Most major interruptible customers with process heating loads were approached this spring in order to obtain their views with regard to their expected natural gas consumption requirements for fiscal years 1982/83 and 1983/84. These views have been reflected in the forecast.

10. This year the sales forecasts include provision for CNG used for automotive purposes. The CNG forecasts included were the ones prepared by Canadian Resourcecon Limited. However, the following modifications were made:

(a) In the high forecast we included Resourcecon's probable rather than their high CNG forecast.

(b) The loads during the first seven years were reduced somewhat by Gas Supply Planning. This modification was also incorporated in our CNG forecast.

In spite of these modifications the CNG probable and high forecasts might probably still be considered to be optimistic for the following reasons:

(a) Penetration rates for automobiles of 12% by the year 2000 and 20% by 2010 were assumed for the medium forecast, and 25% by 2000 and 50% by 2010 for the high forecast. These penetration rates might be considered to be optimistic.

(b) Fuel costs of $0.423 per litre of gasoline and $0.215 per litre of CNG. This large price difference may narrow over the 31 year forecast period as a result of the introduction of road taxes on CNG.

For details of the CNG forecasts and the breakdown into firm and interruptible components see TABLE AI-8.

11. The three forecasts differ also with respect to rates of conversion from oil to natural gas and energy conservation.

12. The high and low projections differ only from the probable one relative to the following classifications: RWH, GWH, CNG and INT. However, these classifications represented 95.0% of the total load in fiscal year 1981/82. (For explanation of classification codes see I.1)

13. The total load in 1992/93 is anticipated to be 1,273.8 × 10^6 BU according to the probable forecast. The high forecast expects a total load of 1,405.8 × 10^6 BU, or 10.4% larger while the low forecast shows a value of 1,152.1 × 10^6 BU, or 9.6% smaller than the probable forecast.

14. The three forecasts show the following average annual compound growth rates for sales in the Lower Mainland (for further details see TABLE AI-1):

	1981/82 - 1992/93		1992/93 - 2002/03		1981/82 - 2002/03	
	Sept/82 (%)	Sept/81 (%)	Sept/82 (%)	Sept/81 (%)	Sept/82 (%)	Sept/81 (%)
Basic Firm						
- High	4.2	4.0	3.8	3.5	4.0	3.8
- Probable	3.1	2.9	3.2	3.0	3.1	2.9
- Low	2.0	2.1	2.5	2.6	2.2	2.4
Interruptible						
- High	2.2	7.2	2.1	4.7	2.2	6.0
- Probable	2.0	5.0	1.8	4.4	1.9	4.7
- Low	1.6	3.8	1.5	3.7	1.5	3.8
Total						
- High	3.7	4.8	3.5	3.9	3.6	4.4
- Probable	2.8	3.4	2.9	3.4	2.9	3.4
- Low	1.9	2.5	2.3	2.9	2.1	2.7

15. The total average annual use rates for RWH and GWH customers were normalized and then broken down into a non-heating and a (space) heating component. The non-heating component was assumed to develop according to the data shown in TABLE AI-2 while the space heating component is shown in TABLE AI-3.

With respect to use rates the following points are emphasized:

(a) The normalized use rates of the six firm classifications of customers for fiscal year 1981/82 multiplied by their average numbers of account during that period is equal to normalized basic firm send-out less 6.0% unaccounted-for gas (UAF).

(b) An examination of the plots of normalized 12 months moving total (12 MMT) use rates for the various firm classifications will show that there are very considerable fluctuations. The selected value for any individual category may be open to argument. However, whatever combination (12 individual values) is selected, the relationship under (a) above must be satisfied. There is no doubt that sound judgement and experience are very important in making this selection.

(c) The breakdown of the total RWH and GWH use rates into non-heat and heat components was again re-evaluated this year. This was done taking the regression coefficients against weather and the daily base load into account.

(d) For the RWH customers in the Lower Mainland a statistical study was made to determine the use rate by type of appliance and for space heating by type of dwelling and by area. This was possible by relating the 1981 Appliance Survey made by B. C. Hydro to the loads of the individual respondents. The values provided by this study also correlate well with the results from the analysis discussed under (c) above.

(e) The effect was determined on the space heating component of the RWH category by the envisioned change in housing mix.

(f) Energy Services re-evaluated the savings resulting from conservation measures for the RWH and GWH categories. It is noteworthy that the anticipated savings for GWH are down relative to previous years' assumptions.

(g) Starting from a breakdown of the space heating losses of a typical 1,200 Square Foot (SF) house, which was provided by Energy Services, another assessment was made of the potential reasonable savings that could be made for retrofitting and for new dwellings built according to more severe insulation standards and equipped with more efficient appliances. The results of this study are reflected in the values shown in TABLE AI-3. These figures also indicate that the heating component of the average annual use rate is higher in Metro than in the Fraser Valley. This is due to the fact that the average house in the former is older and poorer insulated than in the latter. That is also the reason that retrofitting will have a larger relative impact in Metro than in the Fraser Valley. Since the average house in Metro is smaller than in the Fraser Valley, the heating component of a house after retrofitting and of a house built under the new building code will be smaller than for a similar dwelling in the Fraser Valley.

16. The following annual number of retrofits have been assumed starting in the fiscal year 1982/83:

	RWH			GWH		
	Metro	F.V.	L.M.	Metro	F.V.	L.M.
High	8 000	5 000	13 000	800	200	1 000
Probable	10 000	6 000	16 000	1 000	250	1 250
Low	12 000	8 000	20 000	1 200	300	1 500
Initial Stock at 3/82	98 000	51 500	149 500	13 800	5 000	18 800
Retrofits prior to 3/82	44 000	29 000	73 000	5 250	1 630	6 880

17. Details of the assumptions made with respect to conversion of houses and apartments from oil to natural gas are shown in TABLES AI-4 and AI-5 respectively. The initial stock available at March 1982 was obtained from the May 1982 update of the annual study "Residential Housing Stock by Type of Space Heating".

18. The accounts added to the RWH and GWH categories over the forecast period are shown in TABLE AI-6.

19. TABLE AI-7 shows anticipated net interruptible sales other than CNG for the three forecasts. All sales shown are net of 30 days of curtailment. The volumes shown for 1981/82 are also normalized and net of strikes. Interruptible customers with I/F cost ratios > 0.95 were not switched to firm.

20. TABLE G2 in the Summary of Projections of the Gas Load Requirements shows that the normalized interruptible load in fiscal years 1981/82 and 1973/74 are essentially the same. This fact together with the three reasons mentioned in point (9) above were major factors in the significant reduction that was made this year in the interruptible load projections.

21. TABLE AI-9 shows a breakdown of the interruptible load for fiscal year 1981/82 by classification.

22. This year a considerable amount of effort was made to reconcile residential electric and natural gas accounts. For electricity there are two types of account viz. with and without space heating. For natural gas the RWH category represents accounts with space heating. The reconciliation took into account new construction, demolitions and conversions by type of dwelling. Another factor taken into account is the fact that part of the Lower Mainland is not served with natural gas. TABLE AI-10 shows the comparison of residential electric and natural gas heating accounts in the gas area as included in current projections.

COMPARISON OF LOAD PROJECTIONS
PROBABLE VS HIGH VS LOW
Sept/82 vs Sept/81

TABLE AI-1

TOTAL SALES VOLUMES (10^3 BU)		1981/82 (Actual)	1987/88	1992/93	2002/03
Sept/82 Forecasts					
BF	- High		926 400	1 132 030	1 637 740
	- Probable	723 260	871 900	1 007 630	1 380 940
	- Low		817 180	896 510	1 150 260
INT	- High		243 910	273 820	336 810
	- Probable	214 965	240 410	266 120	318 110
	- Low		235 560	255 610	296 060
Total	- High		1 170 310	1 405 850	1 974 550
	- Probable	938 225	1 112 310	1 273 750	1 699 050
	- Low		1 052 740	1 152 120	1 446 320
Sept/81 Forecasts					
BF	- High		934 500	1 119 160	1 583 110
	- Probable	723 260	866 600	987 560	1 324 010
	- Low		822 300	909 760	1 181 300
INT	- High		342 000	460 000	725 000
	- Probable	214 965	292 000	368 000	565 000
	- Low		271 000	324 000	468 000
Total	- High		1 276 500	1 579 160	2 308 110
	- Probable	938 225	1 158 600	1 355 560	1 889 010
	- Low		1 093 300	1 233 760	1 649 300

AV. ANN. GROWTH (%) (Sept/81 Values Bracketed)		81/82-87/88	87/88-92/93	81/82-92/93	92/93-02/03	81/82-02/03
BF	- High	4.2 (4.4)	4.1 (3.7)	4.2 (4.0)	3.8 (3.5)	4.0 (3.8)
	- Probable	3.2 (3.1)	2.9 (2.6)	3.1 (2.9)	3.2 (3.0)	3.1 (2.9)
	- Low	2.1 (2.2)	1.9 (2.0)	2.0 (2.1)	2.5 (2.6)	2.2 (2.4)
INT	- High	2.1 (8.0)	2.3 (6.1)	2.2 (7.2)	2.1 (4.7)	2.2 (6.0)
	- Probable	1.9 (5.2)	2.1 (4.7)	2.0 (5.0)	1.8 (4.4)	1.9 (4.7)
	- Low	1.5 (3.9)	1.6 (3.6)	1.6 (3.8)	1.5 (3.7)	1.5 (3.8)
Total	- High	3.8 (5.3)	3.7 (4.3)	3.7 (4.8)	3.5 (3.9)	3.6 (4.4)
	- Probable	2.9 (3.6)	2.7 (3.2)	2.8 (3.4)	2.9 (3.4)	2.9 (3.4)
	- Low	1.9 (2.6)	1.8 (2.4)	1.9 (2.5)	2.3 (2.9)	2.1 (2.7)

NON-HEATING COMPONENT OF RESIDENTIAL AND GENERAL AVERAGE ANNUAL USE RATES

(BU/Customer/Year)

TABLE AI-2

	No. of Years	METROPOLITAN			FRASER VALLEY		
		High	Prob.	Low	High	Prob.	Low
Residential With Heat (RWH)							
Base for 1981/82	-	295	295	295	275	275	275
1982/83 to 1984/85	3	+6/Y	+3/Y	0/Y	+6/Y	+3/Y	0/Y
1985/86 to 1987/88	3	+5/Y	+2/Y	-1/Y	+5/Y	+2/Y	-1/Y
1988/89 to 1992/93	5	+3/Y	+1/Y	-1/Y	+3/Y	+1/Y	-1/Y
1993/94 to 1997/98	5	+2/Y	0/Y	-2/Y	+2/Y	0/Y	-2/Y
1998/99 to 2002/03	5	+1/Y	0/Y	-1/Y	+1/Y	0/Y	-1/Y
General With Heat (GWH)							
Base for 1981/82	-	2 250	2 250	2 250	1 550	1 550	1 550
1982/83 1984/85	3	+50/Y	+50/Y	+50/Y	+125/Y	+125/Y	+125/Y
1985/86 1987/88	3	+25/Y	+25/Y	+25/Y	+125/Y	+100/Y	+100/Y
1988/89 1992/93	5	+25/Y	+20/Y	+10/Y	+125/Y	+75/Y	+50/Y
1993/94 1997/98	5	+20/Y	+15/Y	+5/Y	+100/Y	+50/Y	+30/Y
1998/99 2002/03	5	+15/Y	+10/Y	0/Y	+75/Y	+35/Y	+10/Y

TABLE AI-3

SPACE HEATING COMPONENT OF RESIDENTIAL AND GENERAL AVERAGE ANNUAL USE RATES
(BU/Customer/Year)

	Existing Premises	RETROFIT		NEW PREMISES	
		Prior to 1985/86	From 1985/86	Prior to 1984/85	From 1984/85
Residential With Heat (RWH)					
Metro					
Savings (%)					
- High	-	15	15	45	45
- Probable	-	15	20	50	55
- Low	-	20	25	55	60
Load (BU)					
- High	1 050	892	892	578	578
- Probable	1 050	892	840	525	472
- Low	1 050	840	788	472	420
Fraser Valley					
Savings (%)					
- High	-	10	10	40	40
- Probable	-	10	15	45	50
- Low	-	15	20	50	55
Load (BU)					
- High	950	855	855	570	570
- Probable	950	855	808	522	475
- Low	950	808	760	475	428
General With Heat (GWH)					
Metro					
Savings (%)					
- High	-	2	5	10	15
- Probable	-	6	12	19	28
- Low	-	11	20	30	41
Load (BU)					
- High	9 000	8 820	8 550	8 100	7 650
- Probable	9 000	8 460	7 920	7 290	6 480
- Low	9 000	8 010	7 200	6 300	5 310
Fraser Valley					
Savings (%)					
- High	-	2	5	10	15
- Probable	-	6	12	19	28
- Low	-	11	20	30	41
Load (BU)					
- High	6 250	6 125	5 938	5 625	5 312
- Probable	6 250	5 875	5 500	5 062	4 500
- Low	6 250	5 562	5 000	4 375	3 688

CONVERSIONS OF HOUSES FROM OIL TO NATURAL GAS
(Affecting RWH Category)

TABLE AI-4

Fiscal Year	HIGH			PROBABLE			LOW		
	Metro	FV	LM	Metro	FV	LM	Metro	FV	LM
Initial Stock									
@ 3/82	35 000	29 800	64 800	35 000	29 800	64 800	35 000	29 800	64 800
1982/83	4 500	2 000	6 500	4 000	1 000	5 000	3 500	800	4 300
1983/84	4 700	1 500	6 200	4 200	1 000	5 200	3 700	800	4 500
1984/85	4 700	1 500	6 200	4 200	1 000	5 200	3 700	800	4 500
1985/86	4 500	1 500	6 000	4 000	1 000	5 000	3 500	800	4 300
1986/87	3 000	1 500	4 500	4 000	1 000	5 000	3 500	800	4 300
1987/88	1 000	1 500	2 500	2 000	1 000	3 000	3 000	800	3 800
1988/89	-	1 500	1 500	-	1 000	1 000	1 500	800	2 300
1989/90	-	1 500	1 500	-	1 000	1 000	-	800	800
1990/91	-	1 500	1 500	-	1 000	1 000	-	800	800
1991/92	-	1 500	1 500	-	1 000	1 000	-	800	800
1992/93	-	1 500	1 500	-	1 000	1 000	-	800	800
1993/94	-	1 500	1 500	-	1 000	1 000	-	800	800
1994/95	-	1 000	1 000	-	1 000	1 000	-	800	800
1995/96	-	500	500	-	1 000	1 000	-	800	800
1996/97	-	-	-	-	1 000	1 000	-	800	800
1997/98	-	-	-	-	1 000	1 000	-	800	800
1998/99	-	-	-	-	1 000	1 000	-	800	800
1999/00	-	-	-	-	1 000	1 000	-	800	800
2000/01	-	-	-	-	1 000	1 000	-	800	800
2001/02	-	-	-	-	500	500	-	800	800
2002/03	-	-	-	-	500	500	-	800	800
TOTAL	22 400	20 000	42 400	22 400	20 000	42 400	22 400	16 800	39 200

NOTE: Difference between total conversions and initial stock is due to the following reasons:

(a) demolitions (Metro and FV);
(b) customers who do not want to convert (Metro and FV);
(c) high cost of conversion due to remoteness of dwelling relative to the road (FV).

CONVERSIONS OF APARTMENTS FROM OIL TO NATURAL GAS
(Affecting GWH Category)

TABLE AI-5

Fiscal Year	HIGH Metro	HIGH FV	HIGH LM	PROBABLE Metro	PROBABLE FV	PROBABLE LM	LOW Metro	LOW FV	LOW LM
Initial Stock									
@ 3/82	7 920	2 050	9 970	7 920	2 050	9 970	7 920	2 050	9 970
1982/83	1 000	50	1 050	1 000	50	1 050	1 000	50	1 050
1983/84	1 100	100	1 200	1 000	50	1 050	1 000	50	1 050
1984/85	1 100	100	1 200	1 000	50	1 050	1 000	50	1 050
1985/86	1 100	100	1 200	1 000	50	1 050	1 000	50	1 050
1986/87	1 000	100	1 100	1 000	50	1 050	1 000	50	1 050
1987/88	200	100	300	500	50	550	500	50	550
1988/89	-	50	50	-	50	50	-	50	50
1989/90	-	50	50	-	50	50	-	50	50
1990/91	-	50	50	-	50	50	-	50	50
1991/92	-	50	50	-	50	50	-	50	50
1992/93	-	50	50	-	50	50	-	50	50
1993/94	-	-	-	-	50	50	-	50	50
1994/95	-	-	-	-	50	50	-	50	50
1995/96	-	-	-	-	50	50	-	50	50
1996/97	-	-	-	-	50	50	-	50	50
1997/98	-	-	-	-	50	50	-	50	50
1998/99	-	-	-	-	-	-	-	-	-
1999/00	-	-	-	-	-	-	-	-	-
2000/01	-	-	-	-	-	-	-	-	-
2001/02	-	-	-	-	-	-	-	-	-
2002/03	-	-	-	-	-	-	-	-	-
TOTAL	5 500	800	6 300	5 500	800	6 300	5 500	800	6 300

TABLE AI-6

RESIDENTIAL AND GENERAL ACCOUNTS WITH SPACE HEATING ADDED TO THE NATURAL GAS SYSTEM

	Period		Δ	METROPOLITAN						FRASER VALLEY					
				High		Prob		Low		High		Prob		Low	
Cat	From	To	(Yrs)	Δ	Y/E	Δ	Y/E	Δ	Y/E	Δ	Y/E	Δ	Y/E	Δ	Y/E
RWH	Base @ 3/82		-		175 246		175 246		175 246		106 524		106 524		106 524
RWH	1982/83	1987/88	6	37 554	212 800	36 554	211 800	33 154	208 400	31 576	138 100	26 676	133 200	22 576	129 100
RWH	1988/89	1992/93	5	16 700	229 500	15 500	227 300	14 600	223 000	30 100	168 200	26 200	159 400	22 100	151 200
RWH	1993/94	1997/98	5	20 200	249 700	18 700	246 000	16 100	239 100	28 900	197 100	28 900	188 300	24 400	175 600
RWH	1998/99	2002/03	5	23 200	272 900	21 300	267 300	18 400	257 500	28 900	226 000	30 900	219 200	27 400	203 000
				97 654		92 054		82 254		119 476		112 676		96 476	
GWH	Base @ 3/82		-		22 214		22 214		22 214		9 696		9 696		9 696
GWH	1982/83	1987/88	6	6 286	28 500	4 286	26 500	3 786	26 000	5 004	14 700	4 404	14 100	3 904	13 600
GWH	1988/89	1992/93	5	7 900	36 400	5 900	32 400	5 400	31 400	6 900	21 600	5 900	20 000	5 400	19 000
GWH	1993/94	1997/98	5	9 100	45 500	7 100	39 500	6 600	38 000	8 100	29 700	7 100	27 100	6 600	25 600
GWH	1998/99	2002/03	5	10 400	55 900	8 400	47 900	7 900	45 900	8 900	38 600	7 900	35 000	7 400	33 000
				33 686		25 686		23 686		28 904		25 304		23 304	

NET INTERRUPTIBLE SALES OTHER THAN CNG
(@ 30 Days Curtailment)

TABLE AI-7

Period			METRO		FRASER VALLEY		LOWER MAINLAND	
From	To	Δ (Yrs)	Y/E Acc.	Sales (10^3 BU)	Y/E Acc.	Sales (10^3 BU)	Y/E Acc.	Sales (10^3 BU)
Base @ 3/82			74	184 517	20	40 011	94	224 528
PROBABLE FORECAST								
1982/83	1987/88	6	85	195 100	21	42 300	106	237 400
1988/89	1992/93	5	90	214 400	23	46 500	113	260 900
1993/94	1997/98	5	95	234 400	25	50 800	120	285 200
1998/99	2002/03	5	102	255 000	27	55 300	129	310 300
HIGH FORECAST								
1982/83	1987/88	6	90	198 000	22	42 900	112	240 900
1988/89	1992/93	5	100	220 800	25	47 800	125	268 600
1993/94	1997/98	5	110	245 000	27	53 000	137	298 000
1998/99	2002/03	5	120	270 500	30	58 500	150	329 000
LOW FORECAST								
1982/83	1987/88	6	85	192 200	21	41 700	106	233 900
1988/89	1992/93	5	90	208 100	23	45 100	113	253 200
1993/94	1997/98	5	95	224 200	24	48 600	119	272 800
1998/99	2002/03	5	100	240 300	26	52 100	126	292 400

PROJECTIONS OF COMPRESSED NATURAL GAS
LOWER MAINLAND

TABLE AI-8

(included in Low, Probable and High Total Projections
(Thousand BU)

Fiscal Year	LOW PROJECTION			PROBABLE PROJECTION			HIGH PROJECTION		
	Firm	Interruptible	Total	Firm	Interruptible	Total	Firm	Interruptible	Total
1981/82	-	-	-	-	-	-	-	-	-
1982/83	20	70	90	30	130	160	30	130	160
1983/84	80	390	470	290	720	1010	290	720	1 010
1984/85	270	1 070	1 340	930	1 930	2 860	930	1 930	2 860
1985/86	1 100	1 410	2 510	3 670	2 570	6 240	3 670	2 570	6 240
1986/87	2 630	1 490	4 120	8 760	2 710	11 470	8 760	2 710	11 470
1987/88	4 640	1 660	6 300	15 460	3 010	18 470	15 460	3 010	18 470
1988/89	6 760	1 960	8 720	22 520	3 570	26 090	22 520	3 570	26 090
1989/90	8 690	2 110	10 800	27 590	3 860	31 450	27 590	3 860	31 450
1990/91	9 680	2 220	11 900	33 530	4 890	38 420	33 530	4 890	38 420
1991/92	9 920	2 310	12 230	36 220	5 040	41 260	36 220	5 040	41 260
1992/93	10 160	2 410	12 570	39 080	5 220	44 300	39 080	5 220	44 300
1993/94	10 390	2 530	12 920	42 170	5 410	47 580	42 170	5 410	47 580
1994/95	10 640	2 640	13 280	45 500	5 600	51 100	45 500	5 600	51 100
1995/96	10 880	2 780	13 660	49 060	5 810	54 870	49 060	5 810	54 870
1996/97	11 150	2 890	14 040	52 890	6 040	58 930	52 890	6 040	58 930
1997/98	11 400	3 030	14 430	57 000	6 290	63 290	57 000	6 290	63 290
1998/99	11 670	3 160	14 830	61 390	6 570	67 960	61 390	6 570	67 960
1999/00	11 940	3 310	15 250	66 130	6 860	72 990	66 130	6 860	72 990
2000/01	12 210	3 460	15 670	71 220	7 160	78 380	71 220	7 160	78 380
2001/02	12 430	3 560	15 990	75 530	7 490	83 020	75 530	7 490	83 020
2002/03	12 640	3 660	16 300	80 120	7 810	87 930	80 120	7 810	87 930

TABLE AI-9

INTERRUPTIBLE LOAD BY CLASSIFICATION
Fiscal Year 1981/82

No.	Classification	Potential Volume (10^3 m^3)	Potential Volume (10^3 BU)	(%)
11	Hospitals	38 917	14 489	5.9
10	Universities, Institutions, Government	51 454	19 156	7.8
5	Hotels, Office Buildings, Apartment Buildings	36 985	13 770	5.6
26	Subtotal	127 356	47 415	19.3
13	Concrete, Cement, Construction Materials	167 795	62 470	25.5
4	Oil Refineries	108 983	40 574	16.5
13	Forest Products	93 382	34 766	14.2
6	Chemicals	68 323	25 437	10.4
16	Food Processing, Breweries, Distilleries	51 264	19 086	7.8
5	Metal Industries	17 315	6 446	2.6
11	Small Industries, Miscellaneous	24 747	9 213	3.7
68	Subtotal	531 809	197 992	80.7
94	Total	659 165	245 407	100.0

NOTES:

Potential volume of an interruptible customer is the volume of natural gas he would have purchased if he had not been curtailed or experienced strikes.

1 standard m^3 of natural gas is equivalent to 0.3723 BU.

1 BU = 10^8 Joules.

RELATIONSHIP BETWEEN NET RESIDENTIAL ELECTRIC AND NATURAL GAS ACCOUNTS[a]
Lower Mainland

TABLE AI-10

NET RES. ELECTRIC ACCOUNT ADDITIONS	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93
Metro (Gas Area)											
Non-Heat	2 770	3 260	3 390	3 530	3 770	3 850	4 110	4 300	4 440	4 770	4 910
Heat	2 680	2 990	2 960	3 020	2 930	2 900	2 840	2 700	2 660	2 580	2 590
Total	5 450	6 250	6 350	6 550	6 700	6 750	6 950	7 000	7 100	7 350	7 500
FV (Gas Area)											
Non-Heat	2 930	3 800	4 110	4 270	4 530	4 710	4 860	5 050	5 170	5 480	5 590
Heat	2 470	2 500	2 240	2 130	2 120	2 090	2 090	2 050	1 980	1 970	1 960
Total	5 400	6 300	6 350	6 400	6 650	6 800	6 950	7 100	7 150	7 450	7 550
LM (Gas Area)											
Non-Heat	5 700	7 060	7 500	7 800	8 300	8 560	8 970	9 350	9 610	10 250	10 500
Heat	5 150	5 490	5 200	5 150	5 050	4 990	4 930	4 750	4 640	4 550	4 550
Total	10 850	12 550	12 700	12 950	13 350	13 550	13 900	14 100	14 250	14 800	15 050
LM (No Gas Area)											
Non-Heat	130	110	110	120	120	130	130	130	130	140	140
Heat	490	650	730	630	660	660	680	690	700	720	720
Total	620	760	840	750	780	790	810	820	830	860	860
LM (Electric Area)[b]											
Non-Heat	5 830	7 170	7 610	7 920	8 420	8 690	9 100	9 480	9 740	10 390	10 640
Heat	5 640	6 140	5 930	5 780	5 710	5 650	5 610	5 440	5 340	5 270	5 270
Total	11 470	13 310	13 540	13 700	14 130	14 340	14 710	14 920	15 080	15 660	15 910
NET NATURAL GAS RES. WITH HTG (RWH)											
Metro	5 870	6 520	6 520	6 470	6 570	6 610	6 420	4 960	3 050	3 270	3 400
FV	3 550	4 330	4 530	4 580	4 780	4 890	4 990	5 170	5 240	5 380	5 400
LM Total	9 420	10 850	11 050	11 050	11 350	11 500	11 410	10 130	8 290	8 650	8 800

Notes:

[a] All account additions refer to fiscal year end accounts.

[b] Differences in fiscal year end total residential electric accounts for the Lower Mainland (electric area) between this table and Table AG1: Probable Projection of Electric Power Sales - Lower Mainland are the result of rounding.